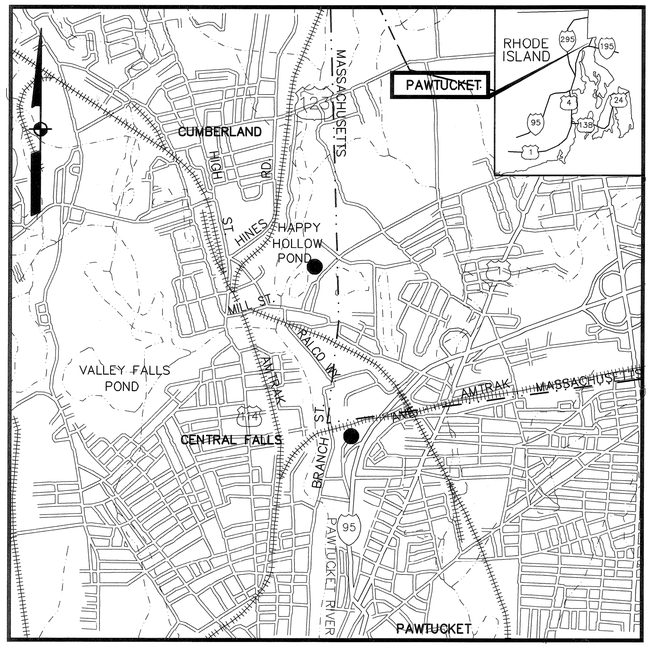
CONTRACT DRAWINGS
- FOR -
Pawtucket Regional Water Treatment Facility
Pkg 11 & 12 Raw Water Pump Station

Pawtucket, Rhode Island

OCTOBER 31, 2006

INDEX



LOCUS
NOT TO SCALE

INDEX

GENERAL NOTES

LOCATIONS OF ALL UTILITIES AND SUB–SURFACE STRUCTURES ARE FROM SURVEY AND RECORDS OF TOWN, CORPORATIONS, ETC., AND ARE CONSIDERED APPROXIMATE BOTH AS TO SIZE AND LOCATION AND ARE INDICATED ON THESE DRAWINGS TO GIVE BIDDERS A GENERAL IDEA OF EXISTING CONDITIONS TO BE INVESTIGATED BY THE BIDDER. IT IS UNDERSTOOD AND AGREED THAT EACH BIDDER WILL NOT RELY UPON THESE DRAWINGS FOR SUCH INFORMATION, BUT THAT EACH BIDDER SHALL MAKE EXAMINATIONS IN THE FIELD BY VARIOUS AVAILABLE METHODS AND SHALL OBTAIN INFORMATION FROM UTILITY CORPORATIONS AND INDIVIDUALS AS TO THE LOCATION OF ALL SUB–SURFACE STRUCTURES.

ALL ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM OF 1929.

ROBERT H. SHELDON
No. 4103
REGISTERED PROFESSIONAL ENGINEER
3/7/09

EarthTech
A Tyco International Ltd. Company
300 Baker Avenue Suite 290 Concord, Mass.

EARTH TECH
AS-BUILT FILE
MAY 2008

Filename: L:\WORK\69993\C4D\AS-BUILT\(11-12) RWTP\69993COV 11-12.DWG
Plot File Date Created: Sep/22/2008 11:33 AM

ABBREVIATIONS AND SYMBOLS

ABBREVIATION	SYMBOLS LESS THAN 4 INCHES	SYMBOLS 4 INCHES & GREATER	DESCRIPTION
ACV			AIR CONTROL VALVE
B. EL.			BASE ELBOW
BV			BALL VALVE
BCV			BALL CHECK VALVE
BFV			BUTTERFLY VALVE (OPEN/CLOSE)
BF			BLIND FLANGE
CL			CENTER LINE
CV			CHECK VALVE
DIS. MANT. JT.			DISMANTLING JOINT
ECC.RED.			ECCENTRIC REDUCER
F.D.			FLOOR DRAIN
FV OR FCV			FLOW CONTROL VALVE
FLG. & FL.			FLANGE AND FLARE
GV			GATE VALVE (1)
H.B.			HOSE BIB
HYD.			HYDRANT
H.W.			HAND WHEEL
KV			KNIFE VALVE
M.H.			MANHOLE
MFM			MAGNETIC FLOW METER
MOV			MOTOR OPERATED VALVE
NV			NEEDLE VALVE
PRV			PRESSURE (REDUCING/REGULATING) VALVE
BPV			BACK PRESSURE CONTROL VALVE
SLV			SURGE RELIEF VALVE
PCV			PNEUMATIC OPERATED MODULATING FLOW CONTROL VALVE
RED.			REDUCER, REDUCING
RM			ROTAMETER

NOTE:
(1) GATE VALVES SHALL NOT BE LARGER THAN 12" DIAMETER UNLESS OTHERWISE DIRECTED.

ABBREVIATION	SYMBOLS LESS THAN 4 INCHES	SYMBOLS 4 INCHES & GREATER	DESCRIPTION
S.OPER.			SOLENOID OPERATED VALVE
LAT.			STRAINER
TEE			TEE
3-WAY PV			THREE WAY PLUG VALVE
VB			VACUUM BREAKER
VENTURI			VENTURI
Y.HYD.			YARD HYDRANT

ABBREVIATIONS FOR PIPE TYPES

ABBREVIATION	DESCRIPTION
A.C.C.M.P.	ASPHALT COATED CORRUGATED METAL PIPE
C.I.	CAST IRON PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CU	COPPER PIPE
D.I.	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PIPE
FPVC	FLEXIBLE POLYVINYL CHLORIDE
GALV.	GALVANIZED PIPE
P.C.C.P.	PRESTRESSED CONCRETE CYLINDER PIPE
POLY	POLYETHYLENE PIPE
P.V.C.	POLYVINYL CHLORIDE PIPE
R.C.	REINFORCED CONCRETE PIPE
S	STEEL PIPE
S.S.	STAINLESS STEEL PIPE
V	VINYL TUBING

ABBREVIATION	PIPE
P.V.C.	CHEMICAL – DOSING
C.P.V.C.	CHEMICALS – FILL
S.S. OR D.I.	INTERIOR RAW WATER
S.S. OR D.I.	INTERIOR TREATED WATER
S.S.	AIR
P.V.C.	ANALYZERS
STEEL	DRAIN
STEEL	FUEL
CU	HEATING WATER
D.I.	OVERFLOW, HIGH SERVICE PUMPS, BACKWASH PUMPS
CU	POTABLE WATER
DUCTILE IRON (4" OR GREATER) P.V.C. (1 1/2"– 3") CU (1 1/4" OR SMALLER)	PLANT WATER
D.I.	SANITARY DRAIN
P.V.C.	VENT
S.S. OR D.I.	RAW AND GALLERY PIPING

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
ACV	AIR CONTROL VALVE
AD	AIR DUCT
AE	ANALYZER ELEMENT
AFF	ABOVE FINISHED FLOOR
AI	AIR INTAKE
AL.	ALUMINUM
ALK	ALKALINITY
BL	BLOWER
BWCV	BACKWASH CONTROL VALVE
CBWCV	CLARIFIER BACKWASH CONTROL VALVE
C.FLG.	COMPANION FLANGE
CHEM.	CHEMICAL
CPB	CHLORINE PULL BOX
CPLG.	COUPLING
CONC.	CONCRETE
C.O.	CLEAN OUT
CSK.	COUNTERSUNK
D	DISCHARGE
DIA.	DIAMETER
DISCH.	DISCHARGE
DN	DOWN
D & T	DRILL AND TAP
EBP	EQUALIZATION PUMP
EL.	ELEVATION
EQ.	EQUALIZATION
EQUIP.	EQUIPMENT
EXP.	EXPANSION
FCV	FLOW CONTROL VALVE
FE	FLOW ELEMENT
FIN. GR.	FINISHED GRADE
FLEX.	FLEXIBLE
FL. EL.	FLOOR ELEVATION
FIN. FLR. EL.	FINISHED FLOOR ELEVATION
FIT	FLOW INDICATOR TRANSMITTER
FLG.	FLANGE
FWCV	FILTER TO WASTE CONTROL VALVE
HGL	HYDRAULIC GRADE LINE
HORIZ.	HORIZONTAL
HSP	HIGH SERVICE PUMP
H.P.	HIGH POINT
H.W.L.	HIGH WATER LEVEL
I	INTAKE
INV.	INVERT
LE	LEVEL ELEMENT
LIT	LEVEL INDICATING ELEMENT
LG.	LONG
L.R.	LONG RADIUS
L.W.L.	LOW WATER LEVEL
MAX.	MAXIMUM
MTG.	MANUFACTURER
MJ	MECHANICAL JOINT
M.W.L.	MAXIMUM WATER LEVEL
MIN.	MINIMUM
MFCV	MANUAL FLOW CONTROL VALVE
MFM	MAGNETIC FLOW METER
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
O.C.	ON CENTER
OPER.	OPERATOR
PDBL	POSITIVE DISPLACEMENT BLOWER
PE	PRESSURE ELEMENT
PIT	PRESSURE INDICATOR TRANSMITTER
PG	PRESSURE GAUGE
PL	PLATE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
RED.	REDUCER, REDUCING
RM	ROTAMETER
S	SPARE
S.G.	SLIDE GATE
SHT.	SHEET
S.O.	SIDE OUTLET
SQ.	SQUARE
S.R.	SHORT RADIUS
S.S.	STAINLESS STEEL
SUCT.	SUCTION
SWP	SAMPLE WATER PUMP
T.O.C.	TOP OF CONCRETE
TOS	TOP OF SLAB
TYP.	TYPICAL
UV	ULTRAVIOLET
VEN.	VENTURI
VERT.	VERTICAL
VG	VACUUM GAUGE
V.O.R.	VALVE ON RISER
W/	WITH
WEIR EL.	WEIR CREST ELEVATION
W.L. EL.	WATER LEVEL ELEVATION
W.P.	WALL PIPE
W.S.	WALL SLEEVE
WS	WATER SURFACE

NOTES:
1. LAYOUTS SHOWN ON MECHANICAL DRAWINGS ARE BASED UPON STAINLESS STEEL PIPE EXCEPT FOR IN HIGH SERVICE PUMP ROOM.
2. THE WALL PIPE SHALL BE PROVIDED WITH SPACE BETWEEN THE WALL AND THE FLANGE TO ALLOW FOR REMOVAL OF BOLTS AS SHOWN IN DWG. M–6. TAPPING WILL NOT BE ACCEPTED.
3. UPON APPROVAL FORM ENGINEER, VITALIC COUPLING CAN BE USED AS RESTRAINTS IN PLACE OF FLANGE CONNECTIONS.

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET	A.R.	10/31/06
0	ISSUED FOR CONSTRUCTION	A.R.	10/28/05
B	REV. @ AGENCY REVIEW	A.R.	9/16/05
A	REV. A CLIENT REVIEW	A.R.	7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 5/7/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
ABBREVIATIONS AND SYMBOLS

DESIGNED BY .	DWG SCALE NONE
DRAWN BY .	CONTRACT NO
CHECKED BY .	DATE OCTOBER 31, 2006

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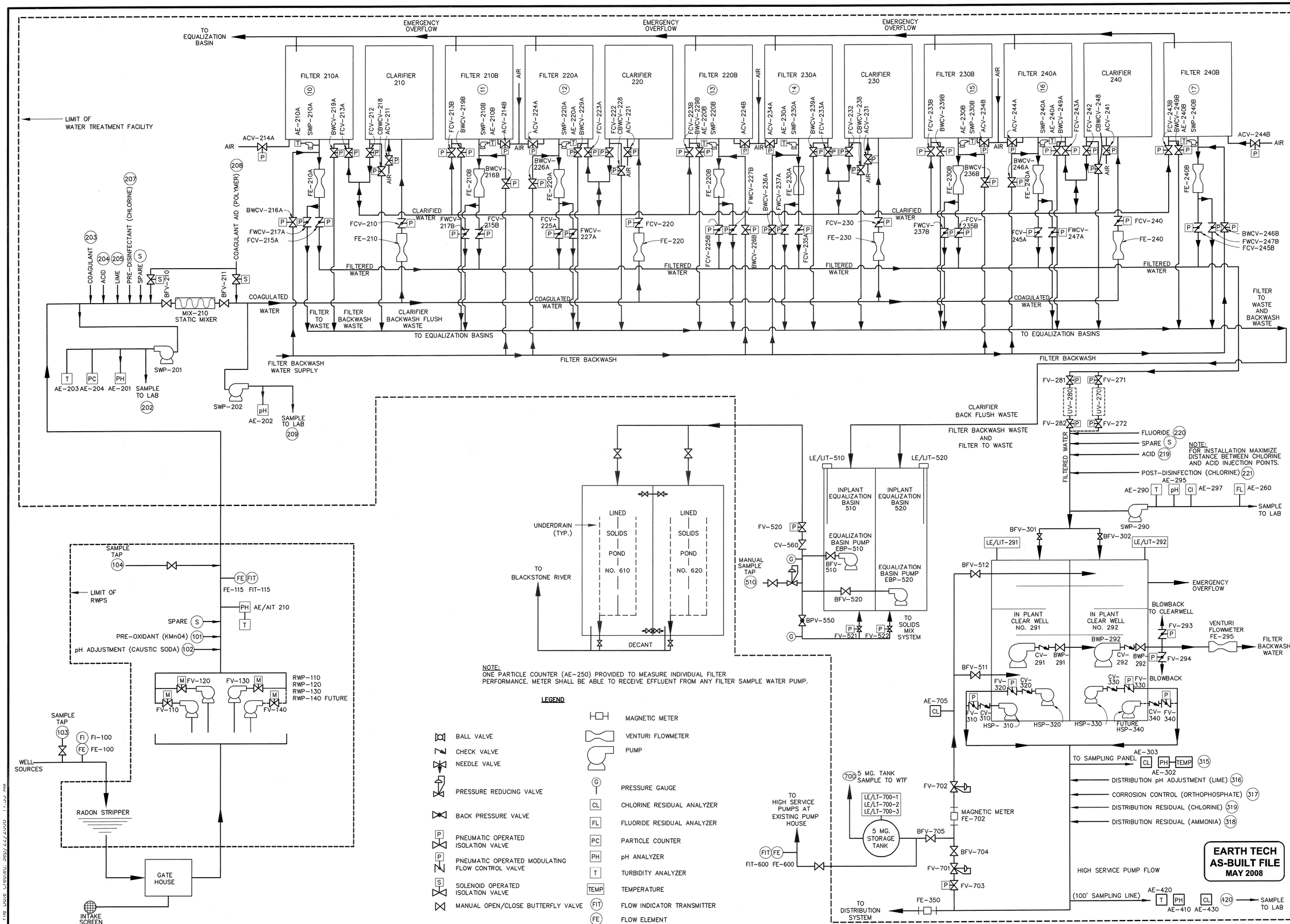

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FULL SIZE DRAWING = 4"

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A	REV. A CLIENT REVIEW	A.R.	7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 7/31/09

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
PROCESS SCHEMATIC

DESIGNED BY	DWG SCALE
.	NONE
DRAWN BY	CONTRACT NO
.	
CHECKED BY	DATE
.	OCTOBER 31, 2006

EARTH TECH AS-BUILT FILE MAY 2008

G-2
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GENERAL LEGEND

EXISTING		PROPOSED
37	INTERMEDIATE CONTOUR	37
35	INDEX CONTOUR	35
36.3x	SPOT ELEVATION	+ 36.30
	EDGE OF WATER	
	EDGE OF WETLANDS	
#A-3 #B-3	BORING LOCATION (SEE GEN. NOTE 2)	
PP# LP	POWER/LIGHT POLE	SEE ELECT. DWGS.
SMH	MANHOLE	SEE MECH. DWGS.
CB	CATCH BASIN	
HYD	HYDRANT	SEE MECH. DWGS.
	TREE LINE	
	BITUMINOUS CONCRETE PAVEMENT	
	CONCRETE SIDEWALK	
	STONE MAINTENANCE STRIP	
	LIMIT-OF-WORK LINE (SEE GEN. NOTE 3)	
	SILTATION CONTROL BARRIER	SCB
	HIGHWAY GUARDRAIL	

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

42"-WASTEWATER
RETAINING WALL
PURIFICATION
CLEAR WELL
ST.
MILL
WELL WATER TO DROPPING COAGULANT WATER EFFLUENT
20" WELL WATER MAIN
WELL WATER MAIN
SEWER
6" WATER
60"ø MAIN DRAIN
3-36"ø STEEL AERATION LINES
72"ø INFLUENT
FIRST 54" RAW WATER INTAKE (L=42.5±)
54"ø RAW WATER
30" ABANDONED WATER
6" SEWER
DRAIN
SCB
MH#4 RIM 65.5 INV. 60.32 (ELEVATIONS ON OLD DATUM)
MH#3 RIM 62.5 INV. 54.08
MH#2 INV. 51.98
ABS210 ABS209 ABS208 ABS207 ABS206 ABS205 ABS204 ABS203 ABS202 ABS201 ABS200
WETLAND FLAGGING
50' PERIMETER WETLAND
VEHICLE TRACKING PAD
PROTECT EXIST CB WITH SILT SACK (TYP.)
B-201 B-202 B-203 E4
NOT USED
20BF68 6GV68 6V68 6V68 6GV68
12 1968 6 1968 20 1968
54 1931 61882 61885 61883 M0408

GENERAL NOTES:

1. ALL EXISTING CONDITIONS ARE FROM A SURVEY RECEIVED FROM THE PAWTUCKET WATER SUPPLY BOARD, ENTITLED "DISTRIBUTION SYSTEM, G.I.S.", DATED JAN. 11, 2000.
2. REFER TO THE SPECIFICATIONS FOR BORING DATES AND LOGS.
3. THE LIMIT OF WORK SHALL BE THE SILTATION CONTROL BARRIER (SCB), EXCEPT WHERE SHOWN THUS:

REFER ALSO TO PACKAGES 10 AND 16 FOR INTERFACES BETWEEN WORK.

4. ALL DISTURBED AREAS WITHIN THE LIMIT OF WORK NOT OTHERWISE DESIGNATED FOR BUILDINGS, PAVEMENT, SIDEWALKS, PLANTING BEDS, ETC. SHALL RECEIVE EROSION CONTROL MATS TO PREVENT EROSION OF EXPOSED SLOPES. ALL DISTURBED AREAS SHALL RECEIVE 6" LOAM AND SEED.
5. ALL PAVEMENT OR SIDEWALKS REMOVED DUE TO CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF OFF SITE.
6. CONTRACTOR SHALL STAKE OUT LOCATIONS OF SHEETING, FENCING, GUARDRAIL AND DRIVEWAY CENTERLINE FOR REVIEW AND APPROVAL BEFORE WORK BEGINS ON THOSE ITEMS.
7. REFER TO THE RHODE ISLAND ENVIRONMENTAL REGULATIONS FOR ENVIRONMENTAL PROTECTION, MONITORING AND REPORTING REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS, AND WITH THOSE IN SPECIFICATION SECTION 01140 – ENVIRONMENTAL PROTECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FEES, FINES AND/OR PENALTIES IF THE PROJECT SITE IS FOUND TO BE IN VIOLATION OF THESE REQUIREMENTS.
8. CONTRACTOR SHALL BE LIMITED TO THE PROJECT SITE PROPERTY BOUNDARIES FOR CONSTRUCTION OPERATIONS.
9. EXISTING CATCH BASINS SHALL BE PROTECTED FROM SILTATION WITH SILT SACKS.
10. VEHICLE TRACKING PAD SHALL BE INSTALLED PRIOR TO CONSTRUCTION.

EARTH TECH AS-BUILT FILE MAY 2008

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300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO	REVISIONS	BY	DATE
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0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND
5/1/09

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
MILL ST RAW WATER PUMP STATION
EXISTING CONDITIONS PLAN

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

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Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\SITE\69993 – MILL ST RWPS – SITEPLAN.DWG
Plot File Date Created: Sep/22/2008 11:33 AM

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PROPOSED RIPRAP SLOPE PROTECTION (12" DEPTH)

PROPOSED GRANITE CURB CORNER (3')

PROPOSED BITUMINOUS CONCRETE PAVEMENT (EXISTING PAVEMENT IN THIS AREA TO BE FULLY REMOVED)

PROPOSED 6" PERF. PVC SUBRDRAIN I=58.50 (S=0.000)

PROPOSED CONCRETE SIDEWALK

PROPOSED STEEL BOLLARDS (2 REQ'D)

PROPOSED GRANITE CURB CORNER (3')

PROPOSED TRANSFORMER TOP OF CONC PAD =73.25 (SEE ELEC. SITE PLAN)

PROPOSED RIPRAP SLOPE PROTECTION (12" DEPTH)

RELOCATED SLIDING FENCE GATE (SEE ELEC. SITE PLAN FOR RELOCATION OF POWER AND SIGNAL CONDUITS)

PROPOSED GENERATOR PAD

RELOCATE EXIST. FENCE WITHIN PROP. LINE

PROP. TRANSFORMER (PROTECT WITH 3 BOLLARDS)

6' ø FLOW METER MANHOLE

PROPOSED EROSION CONTROL BARRIER

SUBDRAIN TO OUTLET TO ROCK SUMP

REMOVE BOTTOM 3" OF DOOR AT THRESHOLD. REMOVE 1 BRICK IN GRATE SUPPORT TO ALLOW DRAINAGE. PROVIDE ANIMAL SCREENS AT DOOR

STONE SLOPE PROTECTION

PROPOSED CONCRETE SIDEWALK SIDEWALK TO PITCH TO BLDG DOOR

PROPOSED SITE STAIRS #3

PROPOSED CONCRETE SIDEWALK

PROPOSED SITE STAIRS #1 AND 2

PROPOSED OUTLET OF 6" PERF. PVC SUBDRAIN I=58.00

N 298030.2070
E 359406.2214
(PLATF. CORN)

N 297981.6230
E 359393.5782
(BLDG. CORN)

N 298030.9454
E 359401.7824
(BLDG. CORN)

N 298037.5087
E 359362.3245
(BLDG. CORN)

N 297988.1859
E 359354.1206
(BLDG. CORN)

PROPOSED RAW WATER PUMPING STATION
UPPER LEVEL F.F.EL = 75.00
LOWER LEVEL F.F.EL = 59.00

GEN PAD (10' X 30')

60"ø MAIN DRAIN

PURIFICATION

CLEAR WELL

MILL ST.

RETAINING WALL

ABS210 ABS209 ABS208 ABS207 ABS206 ABS205 ABS204 ABS203 ABS202 ABS200

SCB

EARTH TECH AS-BUILT FILE MAY 2008

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300 BAKER AVENUE SUITE 280 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

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0	ISSUED FOR CONSTRUCTION		10/26/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND 5/7/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
MILL ST RAW WATER PUMP STATION
PROPOSED SITE PLAN

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

LA-2

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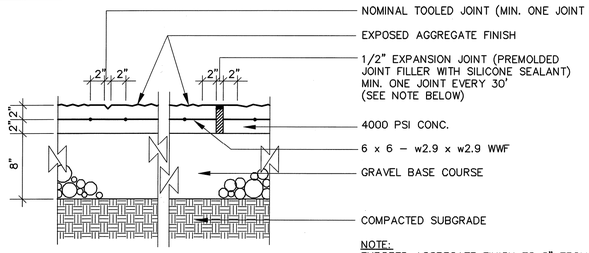
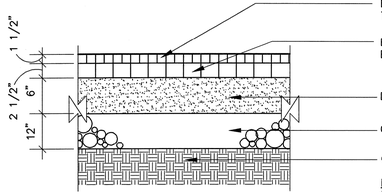


CONCRETE SIDEWALK

NOT TO SCALE

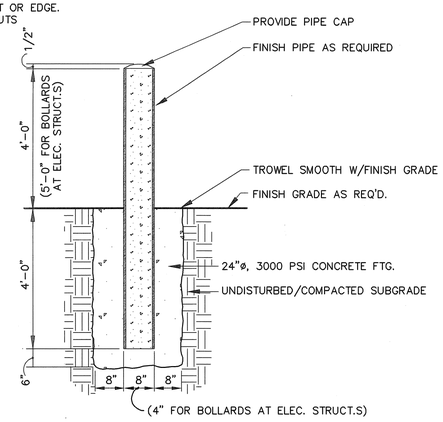
NOTE:
EXPOSED AGGREGATE FINISH TO 2" FROM ANY JOINT OR EDGE. PROVIDE EXPANSION JOINT WHEREVER SIDEWALK ABUTS EXISTING OR PROPOSED STRUCTURES, OR WHERE DIRECTED IN THE FIELD.



BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE

NOTE:
THIS DETAIL, WITHOUT BIT. CONC. PVMT. COURSES, IS TO BE USED FOR GRAVEL DRIVEWAYS.

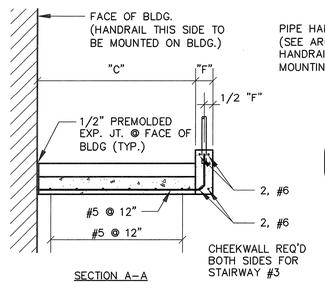


STEEL BOLLARD

NOT TO SCALE

SITE STAIRWAY SCHEDULE

STAIRWAY	"A"	"B"	"C"	"D"	"E"	"F"	B.S. ELEV.	T.S. ELEV.
1	7"	11"	6'-0"	7'-0"	11'-0"	8"	58.58	65.58
2	7"	11"	6'-0"	7'-7"	11'-11"	8"	65.67	73.25
3	6"	11"	6'-0"	1'-9"	7'-4"	8"	54.38	58.38



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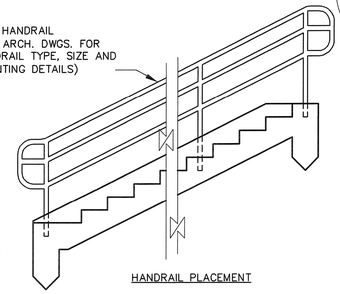
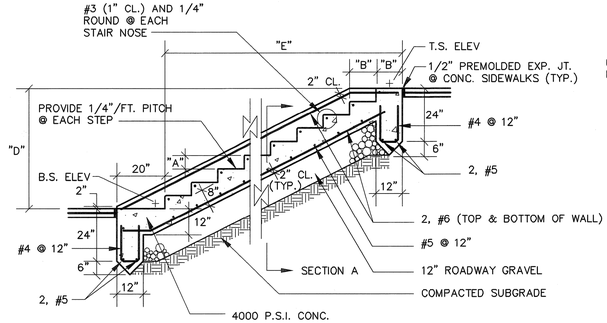


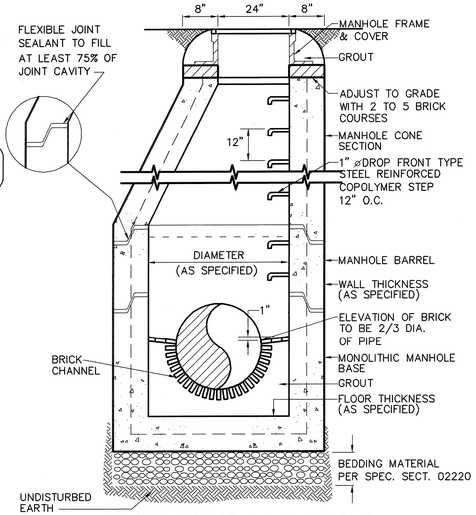
HANDRAIL PLACEMENT



TYPICAL SECTION

CONCRETE SITE STAIRWAY

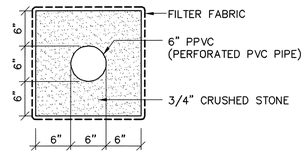
NOT TO SCALE



PRECAST CONCRETE MANHOLE

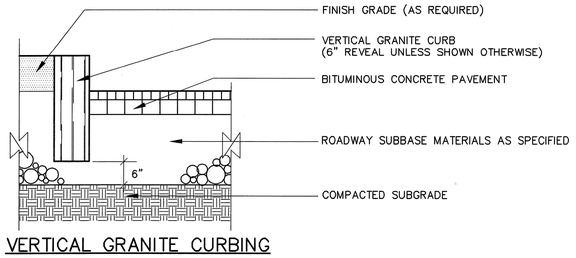
(TYPICAL SECTION)
NOT TO SCALE

DIAMETER	WALL THICKNESS	FLOOR THICKNESS
4 FT.	5 IN.	6 IN.
5 FT.	6 IN.	7 IN.
6 FT.	7 IN.	8 IN.



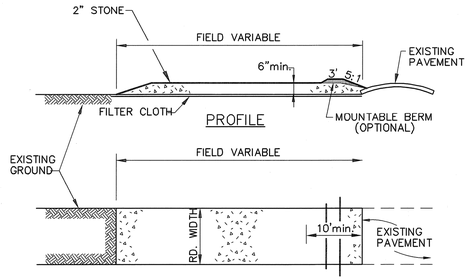
6" PERFORATED PVC PIPE DETAIL

NOT TO SCALE



VERTICAL GRANITE CURBING

NOT TO SCALE



PROFILE

PLAN VIEW

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1.) STONE SIZE:
USE 2" DIAMETER STONE OR RECLAIMED/RECYCLED CONCRETE EQUIVALENT.

2.) LENGTH:
RECOMMEND GREATER THAN 50 FEET WHERE PRACTICAL.

3.) THICKNESS:
NOT LESS THAN 6 INCHES.

4.) WIDTH:
10 FEET MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCUR.

5.) FILTER CLOTH:
SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACING OF STONE.

6.) SURFACE WATER:
ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS INPRACTICAL, A MOUNTABLE BERM WILL BE PERMITTED.

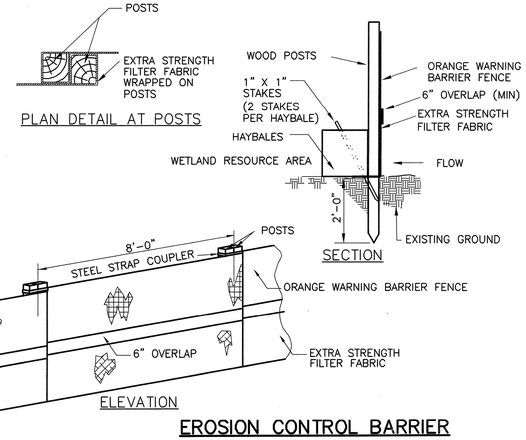
7.) MAINTENANCE:
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT–OF–WAY MUST BE REMOVED IMMEDIATELY.

8.) PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.

9.) REMOVE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO PLACEMENT OF BITUMINOUS BASE COURSE

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



PLAN DETAIL AT POSTS

SECTION

ELEVATION

EROSION CONTROL BARRIER

NOT TO SCALE

EARTH TECH
AS-BUILT FILE
MAY 2008

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	DATE	BY	REVISIONS
A	7/22/05		REV. A CLIENT REVIEW
B	8/16/05		REV. B AGENCY REVIEW
0	10/28/05		ISSUED FOR CONSTRUCTION
1	10/31/06		ISSUED FOR RFI POSTED SET
2	MAY 2008	DPB	AS-BUILT DRAWING FILE

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 5/7/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
MILL ST RAW WATER PUMP STATION
SITE DETAILS

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

LA–3
SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\SITE\69993 – MILL ST RWPS – SITEPLAN.DWG
Plot File Date Created: Sep/22/2008 11:33 AM

EXIST. SEWER INV @ BLDG = 74.0±

EXIST. 20" DI SUPPLY FROM WELLS

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

RETAINING WALL

CLEAR WELL

PURIFICATION

12" DI RAW RESIDUAL
inv = 73.60

15" PVC DECANT @ DMH
inv = 69.50

WELL WATER TO DROPPING COAGULANT WATER EFFLUENT

20" WELL WATER MAIN

WELL WATER MAIN

12" DI RAW RESIDUAL
inv = 71.87

SEWER

15" PVC DECANT
inv = 71.71

12" DI RESIDUAL & 20" RESIDUALS

60"ø MAIN DRAIN

6" WATER

15" PVC DECANT

3-36"ø STEEL AERATION LINES

72"ø INFLUENT

MH#4
RIM 65.0
INV. 60.38
(ELEVATIONS ON OLD DATUM)

6" SEWER

15" PVC DECANT

NOTE:
36" SUCTION LINE SHALL HAVE INSULATION AND HEAT TRACE LINES TO 5' BELOW GRADE

LIMIT OF PIPING THIS CONTRACT
(SEE PKG. 10 FOR CONTINUATION)

6'ø FLOW METER MANHOLE

SMH #1

54"ø RAW WATER

450', FINE BUBBLE AERATION TUBE AND FEEDER PIPING

SMH #1

R=62.03±
I=58.88±(BUILDER'S EXISTING INVERT)

FINE BUBBLE AERATION TUBE AND FEEDER PIPING TO SURROUND AIR PIPING FROM GATEHOUSE

EXIST. 54" RAW WATER INTAKE (I=42.54±)

EXIST. 54" FINISH WATER

2" DOMESTIC SERVICE

6" DI FIRE PROT.

FROM WELLS

20" DRAIN

12" DRAIN

WELL WATER SOURCE RELIEF BLOWOFF
inv = 62.50

WELL WATER
inv = 62.50

36" RW SUCTION
inv = 61.00

SCRAPER CHAMBER PIPING

RESERVOIR AERATION PIPING

4" FLOOR DRAIN
I=54.08 @ BLDG

GEN PAD (10' x 30')

SMH #2

SMH #3

30" ABANDONED WATER

15" PVC DECANT

MH#2
INV. 51.98

2" SERVICE FROM EXIST. 6" WATER LINE
(SEE DWG. P-2)

6" x 6 "x 6" TEE IN EXIST. 6" WATER LIN
(SEE DWG. FP-2)

20" BFV

20" 90° BEND

LIMIT OF PIPING THIS CONTRACT
(SEE PKG. 16 FOR CONTINUATION)

36" 45° BEND
inv = 65.50

36" 22.5° AND 11.25° BENDS

36" X 36" X 36" TEE

36" BFV WITH BURIED ACTUATOR

36" COUPLING

36" BFV WITH BURIED ACTUATOR

42" 22.5° BEND

TRANSITION COUPLING FROM
36" DI TO 42" HDPE

LIMIT OF PIPING THIS CONTRACT
(SEE PKG. 16 FOR CONTINUATION)

SMH #3

R=63.07
I=55.81 (BUILT OVER EXIST INVERT)
42" HDPE 90° BEND
LIMIT OF PIPING THIS CONTRACT
(SEE PKG. 16 FOR CONTINUATION)

58', 6" SEWER (ASTM D-3034) (S=0.010)

10', 4" DI SEWER FROM FLOOR DRAIN
(SEE DWG. P-2) (S=0.026)

SMH #2

R=58.06
I=56.32 (4" IN)
I=56.17 (6" IN & OUT)

56', 6" SEWER (ASTM D-3034) (S=0.033)

EARTH TECH
AS-BUILT FILE
MAY 2008

Filename: C:\DOCUMENTS AND SETTINGS\DAN.WALTON\MY DOCUMENTS\PAWTUCKET_69993\69993 - MILL ST RWPS - SITEPLAN W WALSH.DWG
Plot File Date Created: Mar/05/2009 5:51 PM

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NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/09/06
B	REV. B AGENCY REVIEW		8/16/06
A	REV. A CLIENT REVIEW		7/22/06

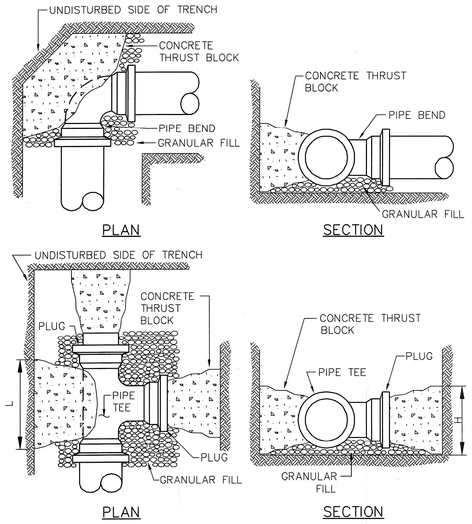
ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
MILL ST RAW WATER PUMP STATION
SITE PIPING PLAN

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

ST-1

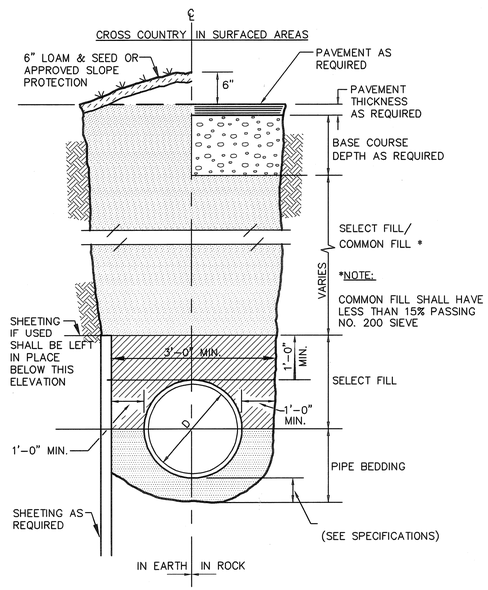
SHEET OF



NOTE:
ALL FITTINGS TO BE PLACED ON WELL CONSOLIDATED GRAVEL BLOCK HEIGHT (H) SHOULD BE APPROXIMATELY 1/2 LENGTH (L) AT SOIL BEARING FACE.

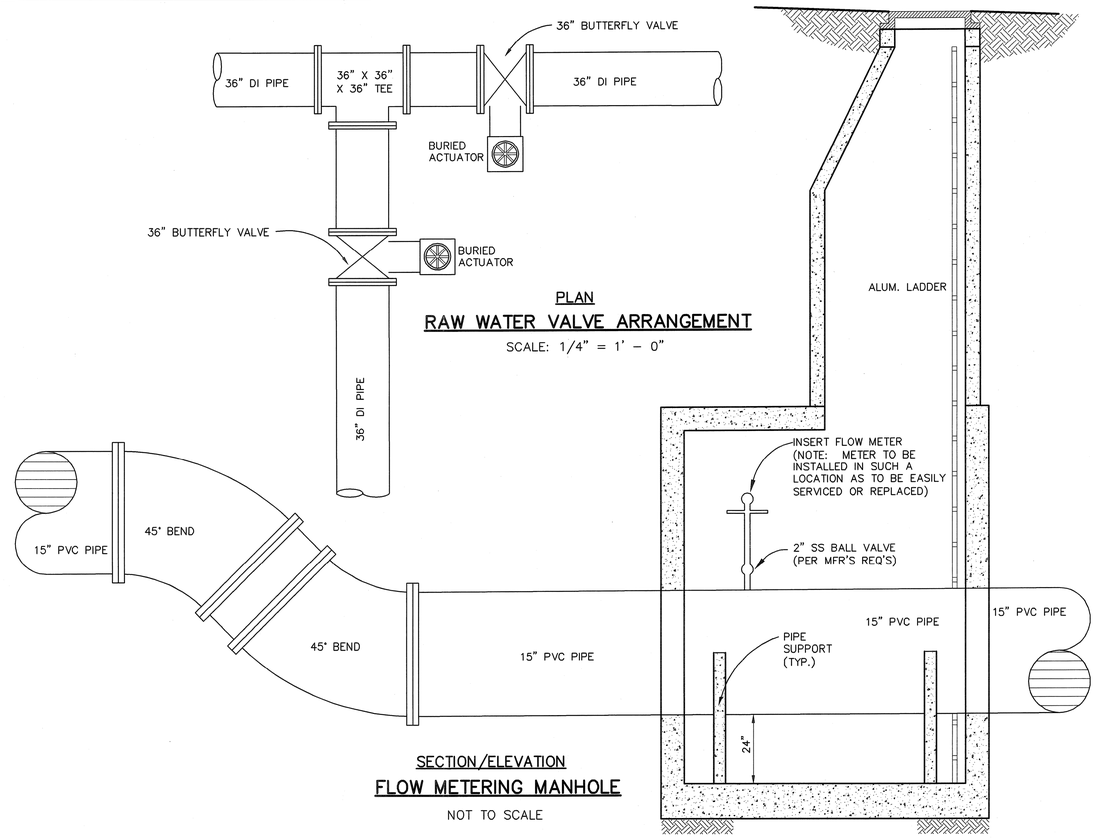
TYPICAL THRUST BLOCK PLACEMENT ON BENDS, TEES AND PLUGS

NOT TO SCALE



TYPICAL TRENCH SECTION

NOT TO SCALE



PLAN
RAW WATER VALVE ARRANGEMENT

SCALE: 1/4" = 1' - 0"

SECTION/ELEVATION
FLOW METERING MANHOLE

NOT TO SCALE

MINIMUM RESTRAINED LENGTH (FEET)

	DIAMETER (INCHES)										
	4	6	8	10	12	14	16	18	20	24	36
BENDS											
11.25	1	1	2	2	3	3	3	4	4	5	9
22.5	2	3	4	5	5	6	7	8	9	10	18
45	4	6	8	10	11	13	15	16	18	21	46
90	10	15	19	23	27	31	35	39	43	50	111
TEES											
4	8	0	0	0	0	–	–	–	–	–	–
6	–	18	13	8	2	0	0	0	0	–	–
8	–	–	29	25	21	16	12	8	3	0	–
10	–	–	–	38	35	32	28	25	21	14	–
12	–	–	–	–	48	46	43	40	37	31	–
14	–	–	–	–	–	58	56	53	51	45	30
16	–	–	–	–	–	–	68	66	64	59	56
18	–	–	–	–	–	–	–	78	76	72	79
20	–	–	–	–	–	–	–	–	87	84	100
24	–	–	–	–	–	–	–	–	–	106	138
36	–	–	–	–	–	–	–	–	–	106	162
REDUCER											
4	–	18	32	45	56	–	–	–	–	–	–
6	–	–	19	34	47	60	72	–	–	–	–
8	–	–	–	18	34	49	62	74	–	–	–
10	–	–	–	–	19	36	50	64	77	–	–
12	–	–	–	–	–	19	36	51	65	91	–
14	–	–	–	–	–	–	19	36	52	80	–
16	–	–	–	–	–	–	–	19	37	67	208
18	–	–	–	–	–	–	–	–	19	53	195
20	–	–	–	–	–	–	–	–	–	37	179
VERTICAL OFFSETS (DOWN)											
11.25	0 0	3 0	6 0	8 0	11 0	14 0	16 1	19 1	21 2	26 4	31 10
22.5	9 0	15 2	20 4	26 5	31 7	36 8	42 10	47 12	52 13	62 16	63 20
45	25 6	54 11	49 14	60 17	71 20	82 24	93 27	104 30	114 33	135 40	130 40
DEAD END											
	24	34	45	55	65	75	85	95	104	124	263

1. VALUES WERE CALCULATED ASSUMING A MINIMUM OF 5 FEET OF COVER OVER THE PIPE, TYPE 5 LAYING CONDITION AND A TOTAL PRESSURE OF 250 PSI (150 PSI TEST PRESSURE WITH A 100 PSI SURGE ALLOWANCE).

2. THE VALUES LISTED FOR BENDS IS THE LENGTH OF RESTRAINED JOINT PIPING REQUIRED FOR EACH SIDE OF THE FITTING.

3. THE VALUES LISTED FOR TEES IS THE LENGTH OF RESTRAINED JOINT PIPING REQUIRED FOR THE TEE BRANCH. VALUES WERE CALCULATED BASED ON A MINIMUM LENGTH OF 10 FEET BETWEEN THE NEAREST JOINTS ON BOTH SIDES OF THE TEE.

4. THE VALUES LISTED FOR REDUCERS IS THE LENGTH OF RESTRAINED JOINT PIPING REQUIRED FOR THE LARGER PIPE.

5. THE VALUES LISTED FOR VERTICAL OFFSETS ARE THE LENGTHS OF THE RESTRAINED JOINT PIPING REQUIRED FOR THE HIGHER PIPE AND THE LOWER PIPE, RESPECTIVELY, AND ASSUMING A VERTICAL OFFSET OF 3 FEET.

6. WHERE THE RESTRAINED LENGTH OF TWO OR MORE FITTINGS OVERLAP, THE LARGER RESTRAINED LENGTH SHALL GOVERN.

7. BACKFILL SHOULD BE COMPACTED TO AT LEAST 90 PERCENT OF MAXIMUM DRY UNIT WEIGHT DETERMINED BY ASTM TEST DESIGNATION D-1557.

8. VALUES LISTED ARE FOR THE SPECIFIC LAYING CONDITIONS LISTED ABOVE. FOR THE LENGTH OF RESTRAINED JOINT PIPING FOR OTHER CONDITIONS, SEE THE ENGINEER.

MINIMUM RESTRAINED JOINT PIPE LENGTH – WATER MAINS

MINIMUM BEARING AREA – FT.^{2}

PIPE DIAMETER (INCHES)	TEES, DEAD ENDS VALVES	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4	2.0	2.0	2.0	2.0	2.0
6	2.5	3.6	2.0	2.0	2.0
8	4.4	6.2	3.3	2.0	2.0
10	6.5	9.2	5.0	2.6	2.0
12	8.9	12.6	6.8	3.4	2.0
14	12.0	16.9	9.2	4.6	2.3
16	14.8	–	11.4	5.8	2.9
18	–	–	12.8	7.3	3.7
20	–	–	16.8	8.6	4.2
24	–	–	–	12.0	6.0
30	–	–	–	–	9.1
36	–	–	–	–	12.7
42	–	–	–	–	16.8

1. BEARING AREAS, BASED ON SOIL BEARING CAPACITY OF 4,000 PSF. MINIMUM BEARING AREA IS 2.0 SQUARE FEET.

2. IF SOIL HAS DIFFERENT BEARING CAPACITY THAN NOTED, NEW BEARING CAN BE CALCULATED BY RATIO I.E., IF SOIL HAS BEARING OF 2,000 PSF, MULTIPLY TABULATED VALUE BY 4/2.

3. TABLE IS FOR HORIZONTAL RESTRAINT ONLY.

4. VALUES SHOWN ARE FOR TEST PRESSURE OF 150 PSI WITH A 100 PSI SURGE ALLOWANCE.

5. THRUST BLOCKS SHALL NOT BE PLACED AGAINST THE FOLLOWING SOILS: A) PEAT, ORGANIC SILT AND ORGANIC SOILS; B) SOFT CLAY; C) RUBBISH FILL AND OTHER UNSUITABLE ARTIFICIAL FILL; D) SHATTERED SHALE; E) INORGANIC SILT AND VERY FINE SANDS.

6. WHERE POSSIBLE, POUR CONCRETE ANCHOR BLOCKS AGAINST UNDISTURBED EARTH. OTHERWISE, PLACE COMPACTED BACKFILL USING GRAVEL AND WELL GRADED SAND AFTER REMOVING FORMS.

7. BACKFILL SHOULD BE COMPACTED TO AT LEAST 90 PERCENT OF MAXIMUM DRY UNIT WEIGHT DETERMINED BY ASTM TEST DESIGNATION D-1557.

MINIMUM THRUST BLOCK SIZING

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2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER MASSACHUSETTS

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
MILL ST RAW WATER PUMP STATION
SITE PIPING DETAILS

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

EARTH TECH AS-BUILT FILE MAY 2008

ST-2
SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\SITE\69993 - MILL ST RWPS - SITEPLAN.DWG
Plot File Date Created: Sep/22/2008 11:33 AM

SYMBOLS USED AS ABBREVIATIONS:

<	ANGLE	⊥	PERPENDICULAR
℄	CENTERLINE	₧	PLATE
[	CHANNEL	Ø	ROUND
P	PENNY		

ABBREVIATIONS:

ABF	ABOVE
AFF	ABOVE FINISHED FLOOR
ASC	ABOVE SUSPENDED CEILING
ACC	ACCESS
ACFL	ACCESS FLOOR
AP	ACCESS PANEL
AC	ACOUSTICAL
ACPL	ACOUSTICAL PLASTER
ACT	ACOUSTICAL TILE
ACR	ACRYLIC PLASTIC
ADD	ADDENDUM
ADH	ADHESIVE
ADJ	ADJACENT
ADJT	ADJUSTABLE
AGG	AGGREGATE
A/C	AIR CONDITIONING
ALT	ALTERNATE
AL	ALUMINUM
ANC	ANCHOR. ANCHORAGE
AB	ANCHOR BOLT
ANOD	ANODIZED
APX	APPROXIMATE
ARCH	ARCHITECT (URAL)
AD	AREA DRAIN
ASPH	ASPHALT
AT	ASPHALT TILE
AUTO	AUTOMATIC
BP	BACK PLASTER (ED)
BSMT	BASEMENT
BRG	BEARING
BPL	BEARING PLATE
BJT	BED JOINT
BM	BENCH MARK
BEL	BELOW
BET	BETWEEN
BVL	BEVELED
BIT	BITUMINOUS
BLK	BLOCK
BLKG	BLOCKING
BD	BOARD
BS	BOTH SIDES
BW	BOTH WAYS
BOT	BOTTOM
BRK	BRICK
BRE	BRONZE
BLDG	BUILDING
BUR	BUILT UP ROOFING
BBD	BULLETIN BOARD
CAB	CABINET
CAD	CADMIUM
CPT	CARPET (ED)
CSMT	CASEMENT
CI	CAST IRON
CIPC	CAST-IN-PLACE CONCRETE
CST	CAST STONE
CB	CATCH BASIN
CK	CAULK (ING) CAULK (ING)
CLG	CEILING
CHT	CEILING HEIGHT
CEM	CEMENT
PCPL	CEMENT PLASTER (PORTLAND)
CM	CENTIMETER (S)
CER	CERAMIC
CT	CERAMIC TILE
CMT	CERAMIC MOSAIC (TILE)
CHBD	CHALKBOARD
CHAM	CHAMFER
CR	CHROMIUM (PLATED)
CIR	CIRCLE
CIRC	CIRCUMFERENCE
CLR	CLEAR (ANCE)
CLS	CLOSURE
COL	COLUMN
COMB	COMBINATION
COMPT	COMPARTMENT
COMPO	COMPOSITION (COMPOSITE)
COMP	COMPRESS (ED). (ION). (IBLE).
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CX	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS OR CONTINUE
CONTR	CONTRACT (OR)
CLL	CONTRACT LIMIT ONE
CJT	CONTROL JOINT
CPR	COPPER
CG	COPPER GUARD
CORR	CORRUGATED
CTR	COUNTER
CFL	COUNTERFLASHING
CS	COUNTERSINK
CTSK	CONTERSUNK SCREW
CRS	COURSE (S)
CRG	CROSS GRAIN
CFT	CUBIC FOOT
CYD	CUBIC YARD
DPR	DAMPER
DP	DAMPPROOFING
DL	DEAD LOAD
DEM	DEMOLISH, DEMOLITION
DMT	DEMOUNTABLE
DEP	DEPRESSED
DTL	DETAIL
DIAG	DIAGONAL
DIAM	DIAMETER
DIM	DIMENSION
DPR	DISPENSER
DIV	DIVISION
DR	DOOR
DA	DOUBLEACTING
DH	DOUBLE HUNG
DTA	DOVETAIL ANCHOR
DTS	DOVETAIL ANCHOR SLOT
DS	DOWNSPOUT
D	DRAIN
DRB	DRAINBOARD
DT	DRAINTILE
DWR	DRAWER
DWG	DRAWING
DF	DRINKING FOUNTAIN
DW	DUMBWAITER
EF	EACH FACE
E	EAST
ELEC	ELECTRIC (AL)
EP	ELECTRICAL PANELBOARD
EWC	ELECTRIC WATER COOLER
EL	ELEVATION
ELEV	ELEVATOR
EMER	EMERGENCY
ENC	ENCLOSE (URE)
EQ	EQUAL
EQP	EQUIPMENT
ESC	ESCALATOR
EST	ESTIMATE
EXCA	EXCAVATE
EXH	EXHAUST
EXG	EXISTING
EXMP	EXPANDED METAL PLATE
EB	EXPANSION BOLT
EXP	EXPOSED
EXT	EXTERIOR
EGCB	EXTERIOR GYPSUM CEILING BOARD
EXS	EXTRA STRONG
EES	EMERGENCY EYEWASH SHOWER
FB	FACE BRICK
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FF	FACTORY FINISH
FAS	FASTEN. FASTENER
FN	FENCE
FBD	FIREBOARD
FGL	FIBERGLASS
FIN	FINISH (ED)
FFE	FINISHED FLOOR ELEVATION
FFL	FINISHED FLOOR LINE
FA	FIRE ALARM
FBRK	FIRE BRICK
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FHS	FIRE HOSE STATION
FPL	FIREPLACE
FP	FIREPROOF
FRC	FIRE-RESISTANT COATING
FRT	FIRE-RETARDANT
FLG	FLASHING
FHMS	FLATHEAD MACHINE SCREW
FHWS	FLATHEAD WOOD SCREW
FLX	FLEXIBLE
FLR	FLOOR (ING)
FLCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FPL	FLOOR PLATE
FLUR	FLUORESCENT
FJT	FLUSH JOINT
FTG	FOOTING
FRG	FORGED
FND	FOUNDATION
FR	FRAME (D). (ING)
FRA	FRESH AIR
FS	FULL SIZE
FBO	FURNISHED BY OTHERS
FUR	FURRED (ING)
FUT	FUTURE
GA	GAGE. GAUGE
GV	GALVANIZED
GI	GALVANIZED IRON
GP	GALVANIZED PIPE
GSS	GALVANIZED STEEL SHEET
GKT	GASKET (ED)
GC	GENERAL CONTRACT (OR)
GL	GLASS. GLAZING
GLB	GLASS BLOCK
GLF	GLASS FIBER
GCMU	GLAZED CONCRETE MASONRY UNITS
GST	GLAZED STRUCTURAL TILE
GB	GRAB BAR
GD	GRADE. GRADING
GRN	GRANITE
GVL	GRAVEL
GF	GROUND FACE
GT	GROUT
GPDW	GYPSUM DRY WALL
GPL	GYPSUM LATHE
GPPL	GYPSUM PLASTER
GPT	GYPSUM TILE
HH	HAND HOLE
HBD	HARDBOARD
HARD	HARDENER
HDW	HARDWARE
HWD	HARDWOOD
HJT	HEAD JOINT
HDR	HEADER
HTG	HEATING
HVAC	HEATING/VENTILATING/AIR CONDITIONING
HD	HEAVY DUTY
HT	HEIGHT
HX	HEXAGONAL
HES	HIGH EARLY-STRENGTH CEMENT
HI	HIGH IMPACT
HC	HOLLOW CORE
HM	HOLLOW METAL
HK	HOOK (S)
HOR	HORIZONTAL
HB	HOSE BIBB
HP	HIGH POINT
HWH	HOT WATER HEATER
INCIN	INCINERATOR
INCL	INCLUDE (D). (ING)
ID	INSIDE DIAMETER
IND	INDUSTRIAL
INS	INSULATE (D). (ION)
INSC	INSULATING CONCRETE
INSF	INSULATING FILL
INT	INTERIOR
ILK	INTERLOCK
INTM	INTERMEDIATE
INV	INVERT
IPS	IRON PIPE SIZE
JC	JANITOR'S CLOSET
JT	JOINT
JF	JOINT FILLER
J	JOIST
KCPL	KEENE'S CEMENT PLASTER
KPL	KICKPLATE
KIT	KITCHEN
KO	KNOCKOUT
LBL	LABEL
LAB	LABORATORY
LAD	LADDER
LB	LAG BOLT
LAM	LAMINATE (D)
LAV	LAVATORY
LH	LEFT HAND
L	LENGTH
LT	LIGHT
LC	LIGHT CONTROL
LF	LIGHT FIXTURE
LP	LIGHT PROOF
LW	LIGHTWEIGHT
LWC	LIGHTWEIGHT CONCRETE
LMS	LIMESTONE
LTL	LINTEL
LL	LIVE LOAD
LVR	LOUVER
LPT	LOW POINT
MB	MACHINE BOLT
MI	MALLEABLE IRON
MH	MANHOLE
MFR	MANUFACTURE (ER)
MRB	MARBLE
MAS	MASONRY
MO	MASONRY OPENING
MTL	MATERIAL (S)
MAX	MAXIMUM
MECH	MECHANIC (AL)
MC	MEDICINE CABINET
MED	MEDIUM
MBR	MEMBER
MMB	MEMBRANE
MET	METAL
MFD	METAL FLOOR DECKING
MTFR	METAL FURRING
MRD	METAL ROOF DECKING
MTHR	METAL THRESHOLD
M	METER (S)
MM	MILLIMETER (S)
MWK	MILLWORK
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MOD	MODULAR
MLD	MOLDING. MOULDING
MR	MOISTURE RESISTANT
MT	MOUNT (ED). (ING)
MO	MASONRY OPENING
MOV	MOVABLE
MULL	MULLION
NL	NAILABLE
NAT	NATURAL
NI	NICKEL
NR	NOISE REDUCTION
NRC	NOISE REDUCTION COEFFICIENT
NOM	NOMINAL
NMT	NONMETALLIC
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
QT	QUARRY TILE
RBT	RABBET. REBATE
RAD	RADIUS
RL	RAIL (ING)
RWC	RAINWATER CONDUCTOR
REF	REFERENCE
RFL	REFLECT (ED). (IVE). (OR)
REFR	REFRIGERATOR
REG	REGISTER
RE	REINFORCE (D). (ING)
RCP	REINFORCED PIPE CONCRETE
REM	REMOVE
RES	RESILIENT
RET	RETURN
RA	RETURN AIR
RV	ROOF VENT
RVS	REVERSE (SIDE)
REV	REVISION (S). REVISED
RH	RIGHT HAND
ROW	RIGHT OF WAY
R	RISER
RVT	RIVET
RD	ROOF DRAIN
RFH	ROOF HATCH
RFG	ROOFING
RM	ROOM
RO	ROUGH OPENING
RB	RUBBER BASE
RBT	RUBBER TILE
RBL	RUBBLE STONE
SFGL	SAFETY GLASS
SCH	SCHEDULE
SCN	SCREEN
SNT	SEALANT
SLR	SEALER
STG	SEATING
SEC	SECTION
SSK	SERVICE SINK
SHTH	SHEATHING
SHT	SHEET
SG	SHEET GLASS
SH	SHELF. SHELVING
SHO	SHORE (D). (ING)
SIM	SIMILAR
SKL	SKYLIGHT
SL	SLEEVE
SC	SOLID CORE
SP	SOUNDPROOF
S	SOUTH
SPC	SPACER
SPK	SPEAKER
SPL	SPECIAL
SPEC	SPECIFICATION (S)
SQ	SQUARE
SST	STAINLESS STEEL
STD	STANDARD
STA	STATION
ST	STEEL
STO	STORAGE
SD	STORM DRAIN
STR	STRUCTURAL
SCT	STRUCTURAL CLAY TILE
SGFT	STRUCTURAL GLAZED FACING TILE
SUS	SUSPENDED
SYM	SYMMETRY (ICAL)
SYN	SYNTHETIC
SYS	SYSTEM
TKBD	TACKBOARD
TKS	TACKSTRIP
TEL	TELEPHONE
TV	TELEVISION
TC	TERRA COTTA
TZ	TERRAZZO
THK	THICK (NESS)
THR	THRESHOLD
TPTN	TOILET PARTITION
TPD	TOILET PAPER DISPENSER
TOL	TOLERANCE
T&G	TONGUE AND GROOVE
TOMRD	TOP OF METAL ROOF DECK
TOEMRD	TOP OF EXISTING METAL ROOF DECK
TORF	TOP OF ROOF
TSL	TOP OF SLAB
TST	TOP OF STEEL
TW	TOP OF WALL
TB	TOWEL BAR
TR	TRANSOM
T	TREAD
TYP	TYPICAL
UC	UNDERCUT
UNF	UNFINISHED
UR	URINAL
VJ	V-JOINT (ED)
VB	VAPOR BARRIER
VAR	VARNISH
VNR	VENEER
VIF	VERIFY IN FIELD
VRM	VERMICULITE
VERT	VERTICAL
VG	VERTICAL GRAIN
VIN	VINYL
VB	VINYL BASE
VCT	VINYL COMPOSITE TILE
VF	VINYL FABRIC
VP	VISION PANEL
WSCT	WAINSCOT
WTW	WALL TO WALL
WH	WALL HUNG
WC	WATER CLOSET
WP	WATERPROOFING
WR	WATER REPELLENT
WS	WATERSTOP
WWF	WELDED WIRE FABRIC
W	WEST
WHB	WHEEL BUMPER
W	WIDTH. WIDE
WIN	WINDOW
WG	WIRED GLASS
WM	WIRE MESH
WO	WITHOUT
WD	WOOD
WB	WOOD BASE
WPT	WORKING POINT

SYMBOLS

BLDG-SECTION — B / A-3 — LETTERS; DWG. NO. WHERE SECTION WAS TAKEN OR WHERE SECTION IS DRAWN

SECTION — 1 / A-4 — NUMBERS; DWG. NO. WHERE SECTION WAS TAKEN OR WHERE SECTION IS DRAWN

DETAIL — 4 / A-5 — NUMBERS; DWG. NO. WHERE DETAIL WAS TAKEN OR WHERE DETAIL IS DRAWN

① DOOR DESIGNATION

LOUVER DESIGNATION

Ⓐ WINDOW DESIGNATION

HATCH HINGE LOCATION

PARTITION TYPE

LEGEND

- CONCRETE
- CONCRETE MASONRY UNIT (C.M.U.)
- CEMENT PLASTER, MORTAR OR GPDW.
- RIGID INSULATION
- FIBERGLASS INSULATION
- LUMBER
- FINISH WOOD
- PLY-WOOD
- ACOUSTIC TILE
- STEEL

INTERIOR PARTITION SCHEDULE

1	4" CMU FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE.
2	8" CMU FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE.
3	8" CMU (2 HR. FIRE RATED UNITS) FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE.
4	12" CMU FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE.
5	12" CMU (2 HR FIRE RATING) FROM FINISH FLOOR TO UNDERSIDE OF STRUCTURE.
6	GPDW PARTITION 2" METAL STUDS @ 16" O.C. W/ 5/8" GPDW ON ONE SIDE. STUDS TO UNDERSIDE OF STRUCTURE DRYWALL TO 6" ABOVE FINISHED CEILING
7	GPDW PARTITION 4" METAL STUDS @ 16" OC WITH 5/8" GPDW EACH SIDE FULL HEIGHT. (MOISTURE RESISTANT AND SOUND INSULATION BATTS WHERE INDICATED).

PARTITION SCHEDULE GENERAL NOTES:

1. ALL CMU PARTITIONS EXTEND TO UNDERSIDE OF STRUCTURE.
2. SEE DRAWING A-14 FOR TYPICAL PARTITION DETAILS.

CODE SUMMARY – W.T.P.

RHODE ISLAND STATE BUILDING CODE
8TH EDITION – INTERNATIONAL BUILDING CODE 2003 EDITION

BUILDING DESCRIPTION:
TWO STORY MASONRY BEARING WALL BUILDING WITH
CONCRETE TEE AND STEEL BEAM ROOF FRAMING

BUILDING FOOTPRINT 26,126 SQ. FT.
BUILDING HEIGHT 2 STORIES – 34 FT. MAX. ABOVE GRADE

USE GROUP F-2 LOW HAZARD FACTORY AND INDUSTRIAL
OCCUPANCY EXCEPT FOR CHEMICAL STORAGE AREAS AT FIRST
FLOOR WHICH ARE H-4 HIGH HAZARD – HEALTH HAZARDS

CONSTRUCTION TYPE = II B NON COMBUSTIBLE UNPROTECTED

FIRE PROTECTION:

SPRINKLERS REQUIRED. FIRST FLOOR TO BE SPRINKLERED EXCEPT
FOR PUMP ROOM 114 WHICH HAS 5,000 – VOLT MOTORS. THIS
ROOM IS TO HAVE 2 HR FIRE SEPARATION FROM REST OF FIRST
FLOOR. UPPER FLOOR SPRINKLERED, EXCEPT FOR ELECTRICAL
ROOM 205 AND FILTER ROOM 212.

CODE SUMMARY – LAB AND OFFICE AREA

RHODE ISLAND STATE BUILDING CODE
8TH EDITION – INTERNATIONAL BUILDING CODE 2003 EDITION

BUILDING DESCRIPTION:
EXISTING ONE STORY BUILDING
SPACE WITH MECHANICAL MEZZANINE

FOOTPRINT OF RENOVATED AREA 4,900 SQ. FT. ±
BUILDING HEIGHT EXISTING – 34 FT. ± ABOVE GRADE

USE GROUP B – BUSINESS OCCUPANCY

CONSTRUCTION TYPE = V B COMBUSTIBLE UNPROTECTED

FIRE PROTECTION:
RENOVATED AREA OF BUILDING SPRINKLED

CODE SUMMARY – RWPS

RHODE ISLAND STATE BUILDING CODE
8TH EDITION – INTERNATIONAL BUILDING CODE 2003 EDITION

BUILDING DESCRIPTION:
TWO STORY MASONRY BEARING WALL BUILDING WITH
CONCRETE PLANK ROOF FRAMING

BUILDING FOOTPRINT 2376 SQ. FT.
BUILDING HEIGHT 2 STORIES – 35 FT. MAX. ABOVE GRADE

USE GROUP F-2 LOW HAZARD FACTORY AND INDUSTRIAL
OCCUPANCY EXCEPT FOR CHEMICAL STORAGE AREAS AT FIRST
FLOOR WHICH ARE H-4 HIGH HAZARD – HEALTH HAZARDS

CONSTRUCTION TYPE = II B NON COMBUSTIBLE UNPROTECTED

FIRE PROTECTION:

SODIUM HYDROXIDE 25% TO 45% TOTAL STORAGE
8,500 GAL. – CORROSIVE – NFPA RATINGS – 3
FLAMMABILITY – 0 REACTIVITY – 1
POTASSIUM PERMANGANATE – 50# BAGS
TOTAL 1,500 LBS. NFPA RATINGS – HEALTH –1
FLAMMABILITY – 0 REACTIVITY – 1
OTHER – OXIDIZER
SPRINKLERS PROVIDED AT CHEMICAL STORAGE ROOM
THIS ROOM TO HAVE 2 HR FIRE SEPARATION FROM
REST OF FIRST FLOOR – TABLE 302.3.2

EARTH TECH
AS-BUILT FILE
MAY 2008

TAMS ARCHITECTS & ENGINEERS, INC.
AN EARTH TECH COMPANY – RI COA A-14,324

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 280 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	DATE	BY	REVISIONS
2	MAY 2008	DPB	AS-BUILT DRAWING FILE
1	10/31/06		ISSUED FOR RFI POSTED SET
0	10/26/05		ISSUED FOR CONSTRUCTION
B	8/16/05		REV. B AGENCY REVIEW
A	7/22/05		REV. A CLIENT REVIEW

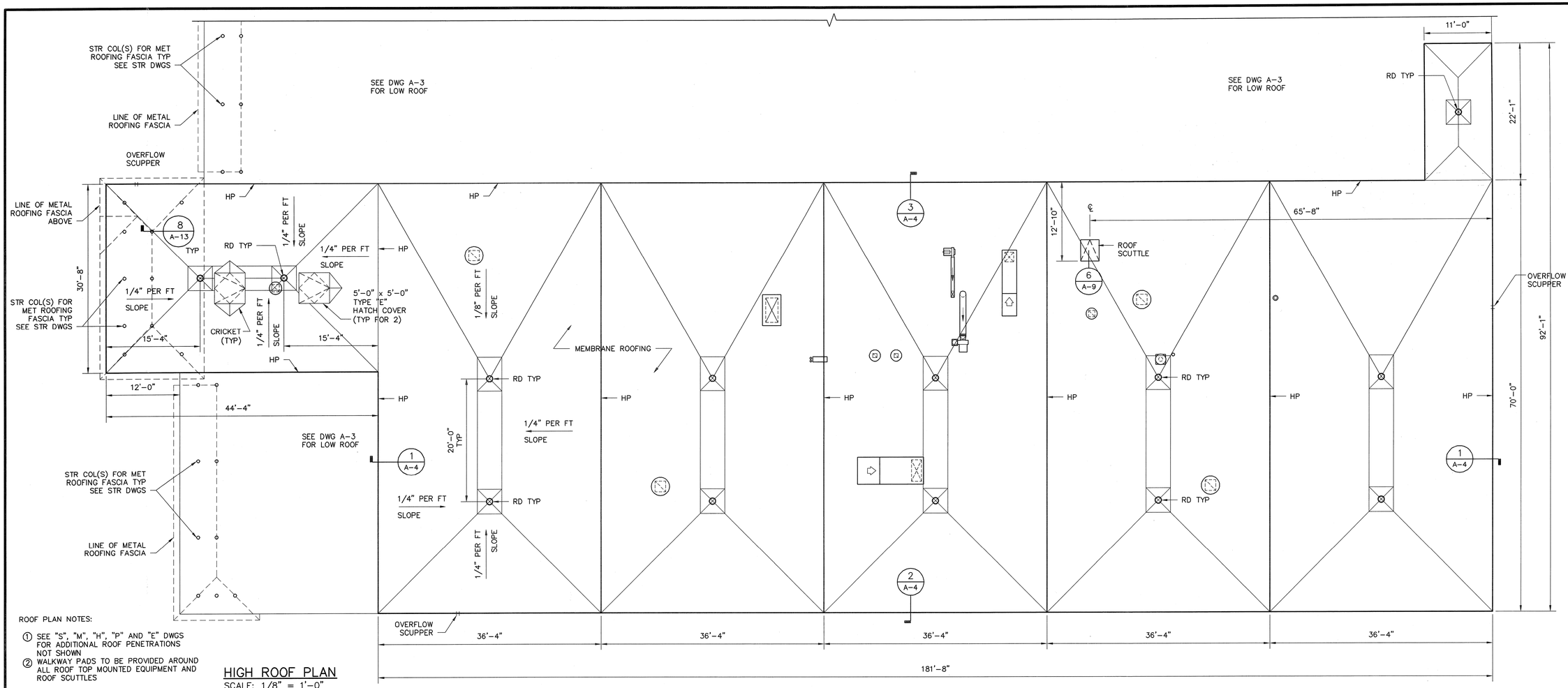
ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND 10/31/06

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
ABBREVIATIONS AND CODE SUMMARY

DESIGNED BY ARN	DWG SCALE NTS
DRAWN BY ECD	CONTRACT NO
CHECKED BY ARN	DATE OCTOBER 31, 2006

A-1
SHEET OF

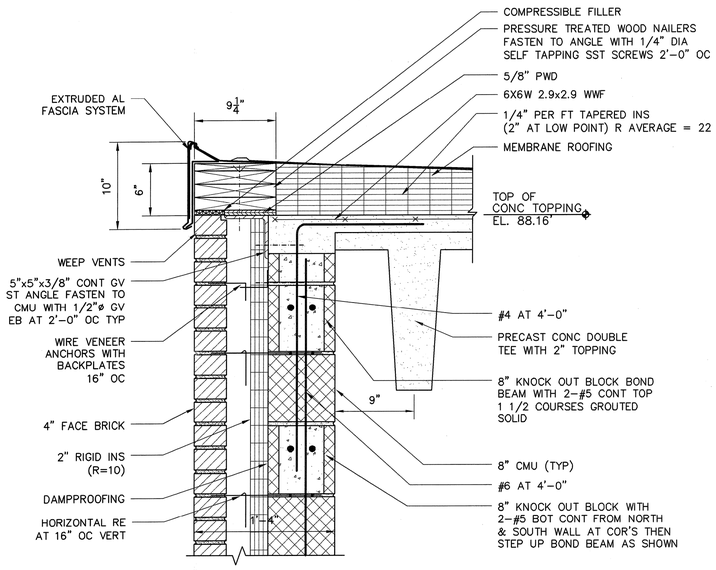
PLOT FILE DATE CREATED: 3:59:27 2006 11:59 AM



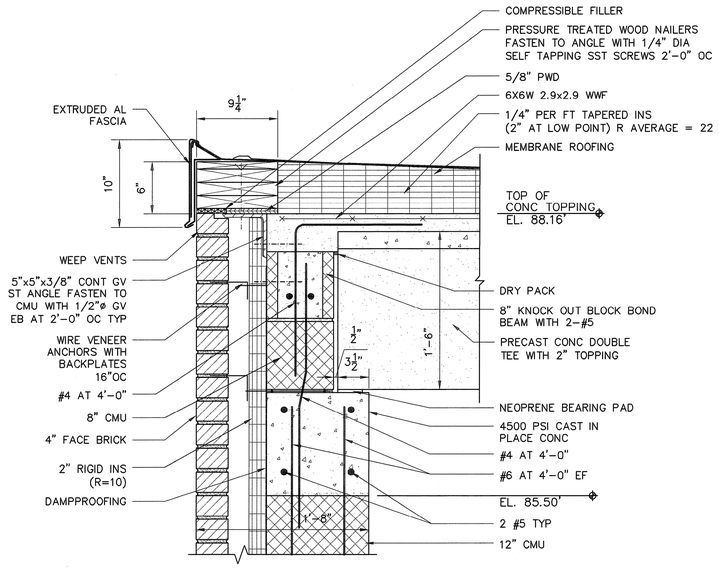
ROOF PLAN NOTES:

1. SEE "S", "M", "H", "P" AND "E" DWGS FOR ADDITIONAL ROOF PENETRATIONS NOT SHOWN
2. WALKWAY PADS TO BE PROVIDED AROUND ALL ROOF TOP MOUNTED EQUIPMENT AND ROOF SCUTTLES

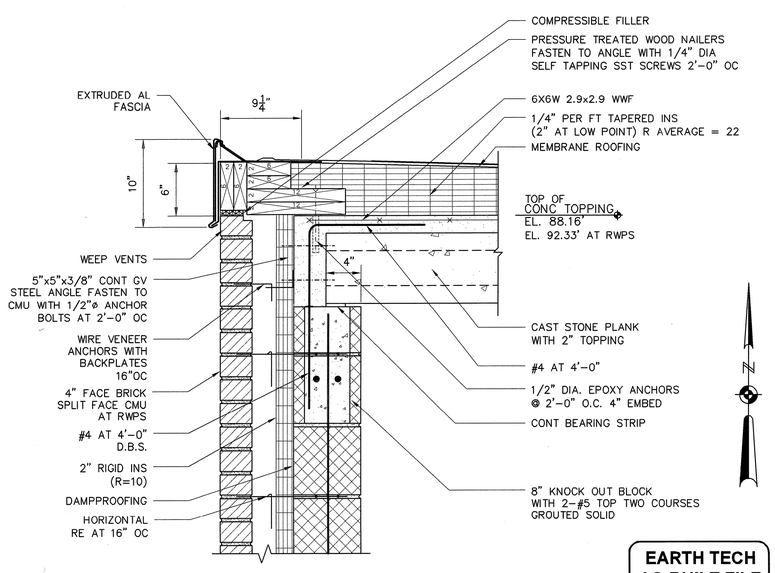
HIGH ROOF PLAN
SCALE: 1/8" = 1'-0"



DETAIL
SCALE: 1 1/2" = 1'-0" (1 A-4)



DETAIL
SCALE: 1 1/2" = 1'-0" (2 A-4)



DETAIL
SCALE: 1 1/2" = 1'-0" (3 A-4)

EARTH TECH AS-BUILT FILE MAY 2008

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		9/16/05
A	REV. A CLIENT REVIEW		7/22/05

TAMS ARCHITECTS & ENGINEERS, INC.
AN EARTH TECH COMPANY - RI COA A-14,324
EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA. 01742 (978) 371-4000

ROBERT H. SHELDON 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS 3/14/08

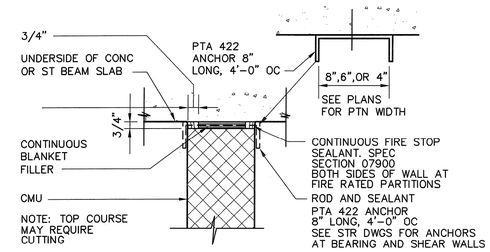
PAWTUCKET, RHODE ISLAND

PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
HIGH ROOF PLAN

DESIGNED BY ARN	DWG SCALE 1/8"=1'-0"
DRAWN BY ECD	CONTRACT NO
CHECKED BY ARN	DATE OCTOBER 31, 2006

A-4
SHEET OF

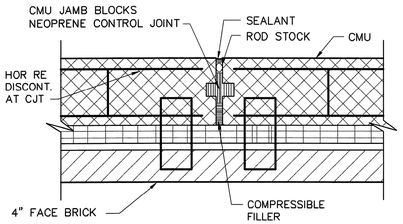
PLOT FILE NAME: G:\PROJECTS\...\A-4.DWG 11:34 AM



TOP OF CMU WALL AT CONC PLANK OR SLAB

TYPICAL DETAIL (TOP OF CMU WALL) 1

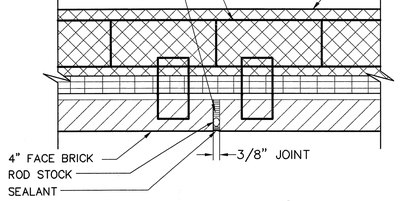
SCALE: 1 1/2"=1'-0"



BACK UP MASONRY CONTROL JOINT 2

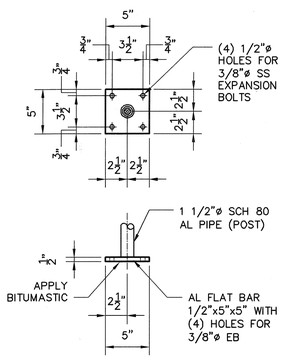
SCALE: 1 1/2"=1'-0"

NOTE: FALSE JOINT WITH ROD AND SEALANT AT KNOCKOUT BLOCK ABOVE BOND BEAM REINFORCING TO BE CONTINUOUS



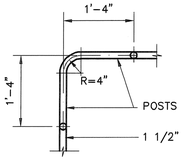
VENEER CONTROL JOINT 3

SCALE: 1 1/2"=1'-0"



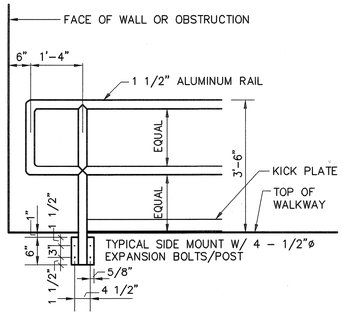
TYP. TOP MOUNTED POST 4

SCALE: 1 1/2"=1'-0"



PLAN VIEW OF RAIL AND POSTS AT CORNER 5

SCALE: 3/4"=1'-0"

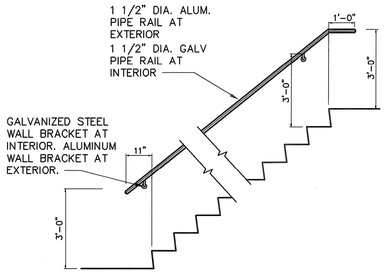


TYPICAL RAILING 6

N.T.S.

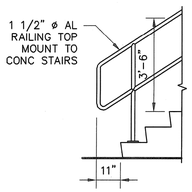
TYP. SIDE MOUNTED POST 7

SCALE: 1 1/2"=1'-0"



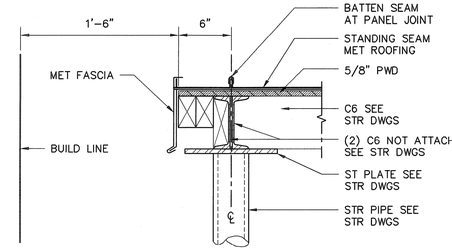
TYP. WALL MOUNTED STAIR HANDRAIL 8

N.T.S.



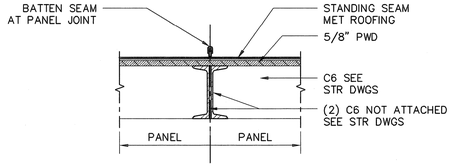
TYP RAILING AT STAIR 9

SCALE: 3/8" = 1'-0"



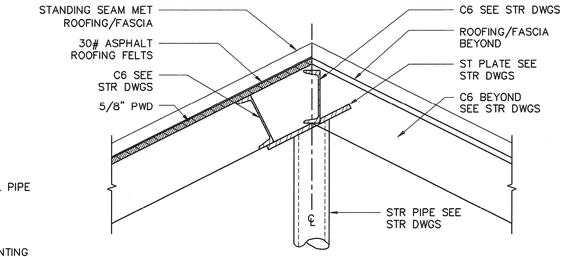
DETAIL GABEL END OF ROOFING/FASCIA 10

SCALE: 1 1/2"=1'-0"



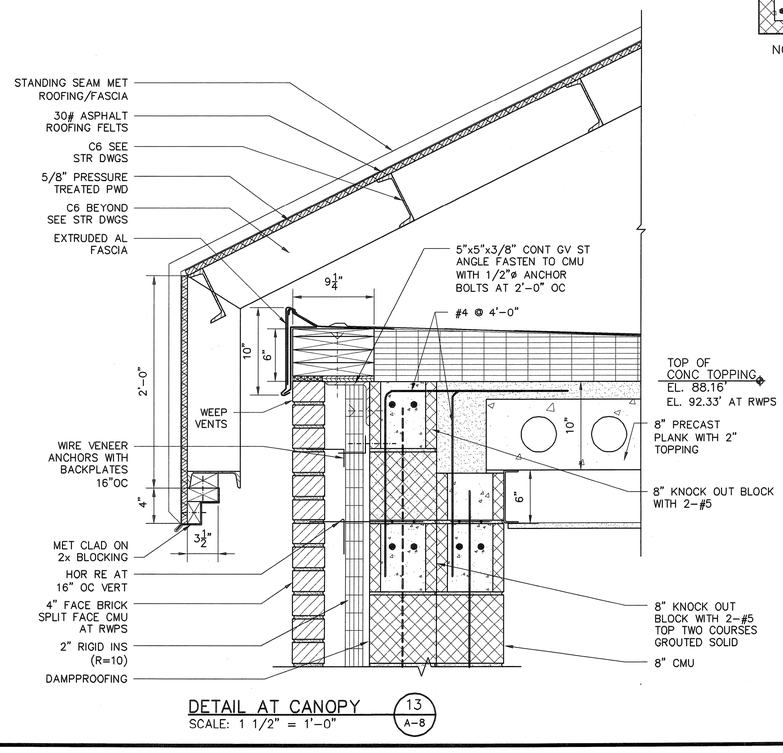
DETAIL PANEL JOINT 11

SCALE: 1 1/2"=1'-0"



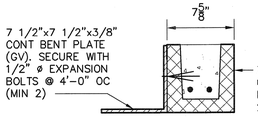
DETAIL AT PEAK 12

SCALE: 1 1/2"=1'-0"

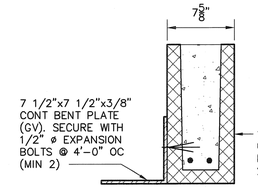


DETAIL AT CANOPY 13 (A-8)

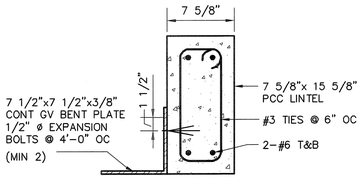
SCALE: 1 1/2" = 1'-0"



NO. 1



NO. 2



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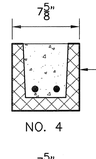

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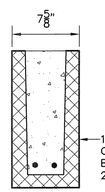

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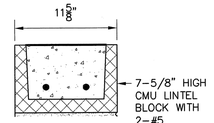

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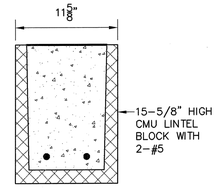

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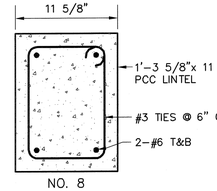

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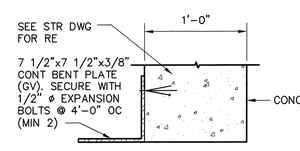


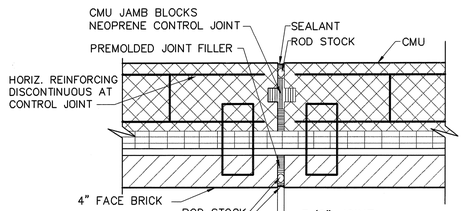
NO. 9

NOTES:

1. ALL LINTELS TO HAVE MINIMUM 8" BEARING EACH END EXCEPT AS NOTED.
2. SEE DOOR HEAD DETAILS ON DWGS A-11 FOR ADDITIONAL LOOSE STEEL LINTEL ANGLES WHERE APPLICABLE.
3. SEE LOUVER HEAD DETAILS ON DWG A-11 FOR ADDITIONAL LOOSE STEEL LINTEL ANGLES WHERE APPLICABLE.

CONCRETE/MASONRY LINTEL SCHED

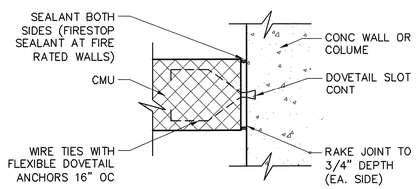
SCALE: 1 1/2"=1'-0"



KNOCK OUT PANEL DETAIL 14

SCALE: 1 1/2"=1'-0"

NOTE: PROVIDE FALSE JOINT AT BOND BEAM ABOVE. RAKE JOINT 3/4". CONTINUE ROD & SEALANT TO UNDERSIDE OF SLAB.



INTERIOR CMU ANCHORAGE TO CONCRETE

DETAIL 15 (A-2)

SCALE: 1 1/2"=1'-0"

EARTH TECH AS-BUILT FILE MAY 2008

TAMS ARCHITECTS & ENGINEERS, INC.
AN EARTH TECH COMPANY – RI COA A-14,324

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	DATE	BY
2	AS-BUILT DRAWING FILE	MAY 2008	DPB
1	ISSUED FOR RFI POSTED SET	10/31/06	
0	ISSUED FOR CONSTRUCTION	10/26/05	
B	REV. B AGENCY REVIEW	9/16/05	
A	REV. A CLIENT REVIEW	7/22/05	

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 3/7/09

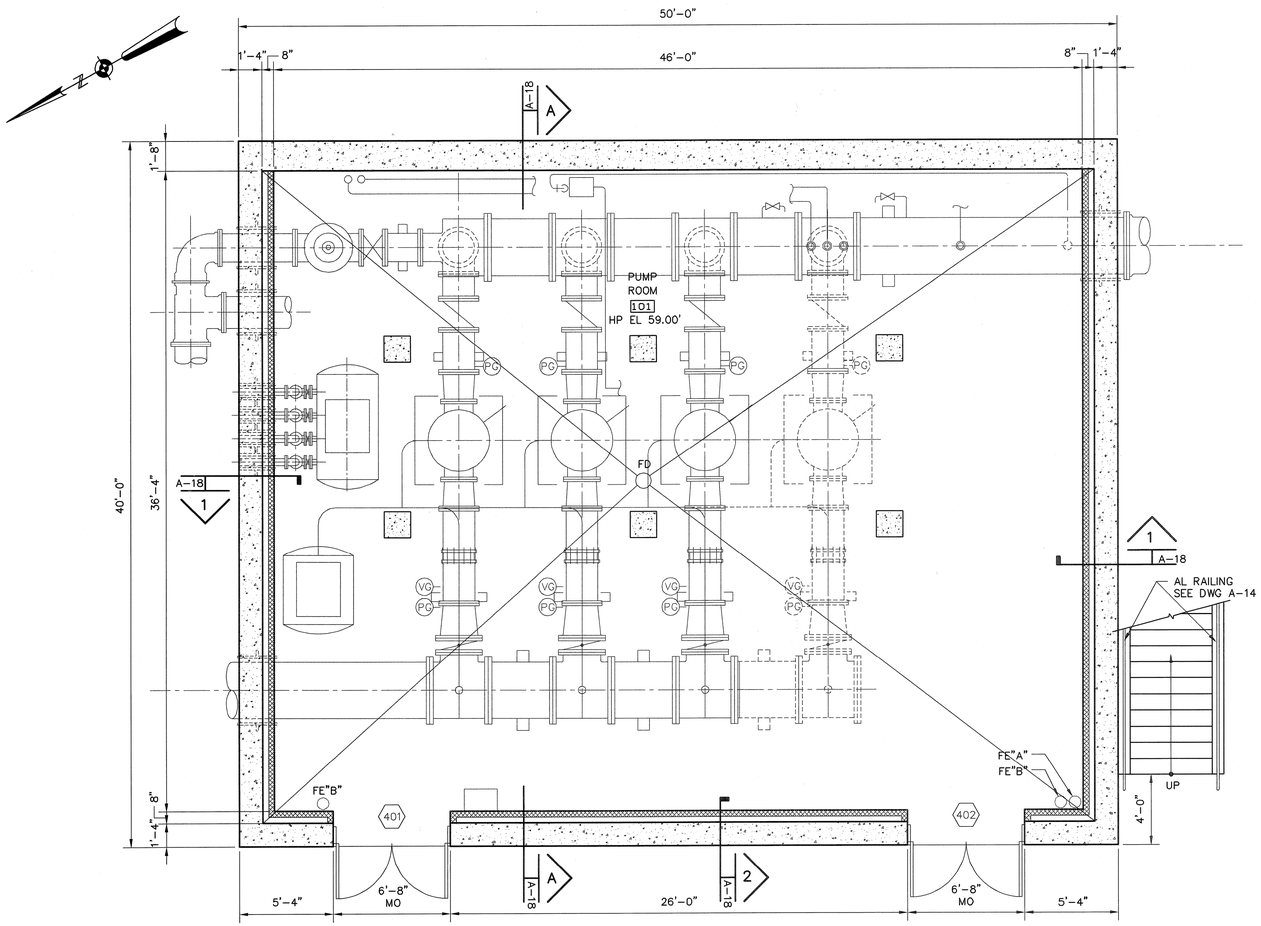
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
DETAILS

DESIGNED BY ARN	DWG SCALE AS NOTED
DRAWN BY ECD	CONTRACT NO
CHECKED BY ARN	DATE OCTOBER 31, 2006

A-14

SHEET OF

PLOT FILE DATE CREATED: 3/6/2009 11:03 AM



PUMP LEVEL FLOOR PLAN – EL. 59.00'
SCALE: 1/4" = 1'-0"

ROOM FINISH SCHEDULE

ROOM	ROOM NO.	FLOOR	BASE	N–WALL	E–WALL	S–WALL	W–WALL	CEILING	CLG. HT.	REMARKS
PUMP ROOM	101	CONC	CONC	CONC	CONC	CONC	CONC	CONC	–	(1)
		HARD	PNT	PNT	PNT	PNT	PNT	PNT	–	
CORRIDOR	201	CONC	CMU	CMU	CMU	CMU	CMU	CONC	–	(1)
		HARD	PNT	PNT	PNT	PNT	PNT	PNT	–	
STRIPPER ROOM	202	CONC	CMU	CMU	CMU	CMU	CMU	CONC	–	(1)
		HARD	PNT	PNT	PNT	PNT	PNT	PNT	–	
ELECTRICAL ROOM	203	CONC	CMU	CMU	CMU	CMU	CMU	CONC	–	(1)
		HARD	PNT	PNT	PNT	PNT	PNT	PNT	–	
CHEMICAL STORAGE ROOM	204	CONC	CMU	CMU	CMU	CMU	CMU	CONC	–	(1) (2)
		HARD	PNT	PNT	PNT	PNT	PNT	PNT	–	

SUBSTRATE
FINISH

ROOM FINISH SCHEDULE NOTES:

(1) PAINTED BASES ARE 8" HIGH (ONE BLOCK COURSE) AND ARE TO BE PAINTED A DIFFERENT COLOR THAN WALL.

(2) CHEMICAL CONTAINMENT AREAS (CCA) TO RECEIVE LINER SEE SPECIFICATION SECTION 09661

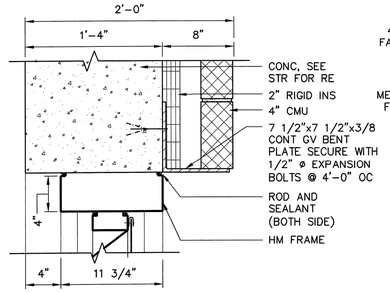
DOOR SCHEDULE

DOOR NO.	DOORS OPENING SIZE WIDTH x HEIGHT	MATERIAL	TYPE	FRAMES HEAD	JAMB	SILL	TYPE	MATERIAL	LINTEL NO.	REMARKS
401	PR. 3'-2" x 7'-0"	HM	A	1/A-17	2/A-17	T-1/A-17	3	HM	9/A-18	
402	PR. 3'-2" x 7'-0"	HM	A	1/A-17	2/A-17	T-1/A-17	3	HM	9/A-18	
403	PR. 3'-0" x 7'-8"	HM	A	3/A-17	7/A-17	T-1/A-17	4	HM	10/A-18	
404	3'-0" x 7'-8"	HM	A	3/A-17	4/A-17	T-1/A-17	1	HM	2/A-14	
405	3'-0" x 7'-8"	HM	A	3/A-17	4/A-17	T-1/A-17	1	HM	2/A-14	
406	3'-0" x 7'-8"	HM	A	3/A-17	4/A-17	T-1/A-17	1	HM	2/A-14	
407	3'-0" x 7'-8"	HM	A	5/A-17	6/A-17	–	1	HM	4/A-14	1 1/2 HR FIRE RATING
408	3'-0" x 7'-8"	HM	A	5/A-17	6/A-17	–	1	HM	4/A-14	1 1/2 HR FIRE RATING
409	3'-0" x 7'-8"	HM	A	5/A-17	6/A-17	–	1	HM	4/A-14	1 1/2 HR FIRE RATING

FULL FLUSH

A

DOOR TYPES
NOT TO SCALE



DETAIL (HEAD) (1 / A-17)
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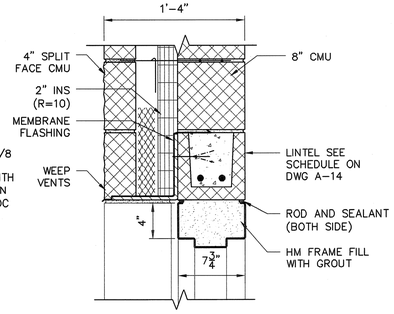

DETAIL (HEAD) (3 / A-17)
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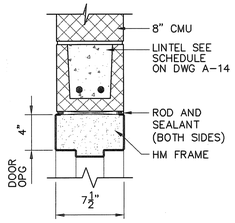
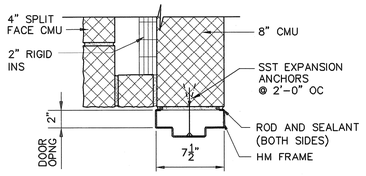
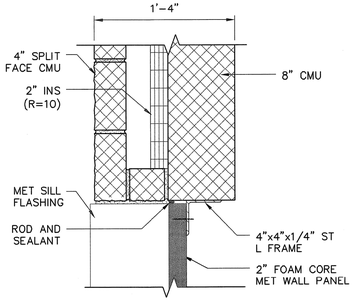


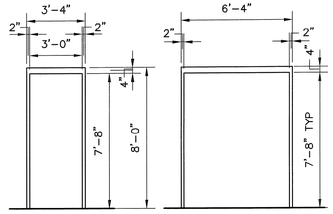
DETAIL (HEAD) (5 / A-17)
SCALE: 1 1/2" = 1'-0"

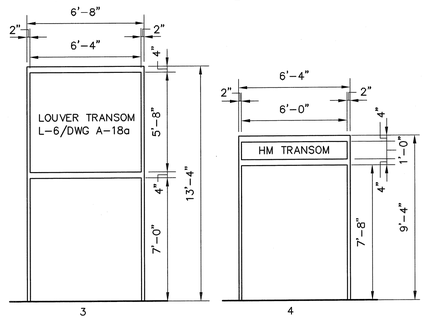


DETAIL (JAMB) (7 / A-17)
SCALE: 1 1/2" = 1'-0"

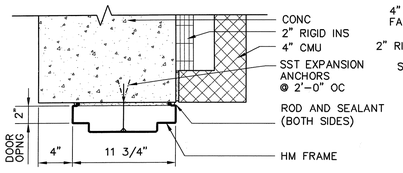


DETAIL (JAMB) (9 / A-17)
SCALE: 1 1/2" = 1'-0"

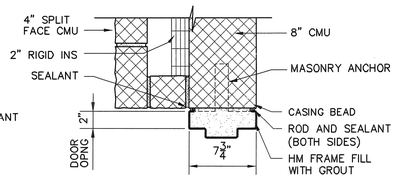




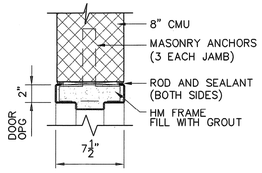
FRAME TYPES
SCALE: 1/4" = 1'-0"



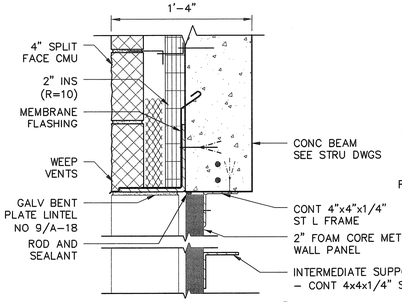
DETAIL (JAMB) (2 / A-17)
SCALE: 1 1/2" = 1'-0"



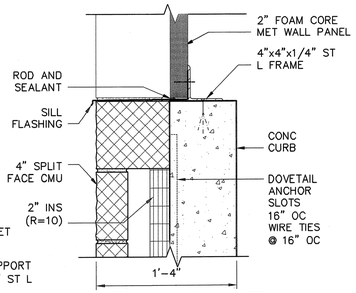
DETAIL (JAMB) (4 / A-17)
SCALE: 1 1/2" = 1'-0"



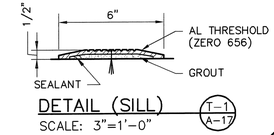
DETAIL (JAMB/SILL) (6 / A-17)
SCALE: 1 1/2" = 1'-0"



DETAIL (HEAD) (8 / A-17)
SCALE: 1 1/2" = 1'-0"



DETAIL (SILL) (10 / A-17)
SCALE: 1 1/2" = 1'-0"



DETAIL (SILL) (T-1 / A-17)
SCALE: 3"=1'-0"

EARTH TECH
AS-BUILT FILE
MAY 2008

TAMS ARCHITECTS & ENGINEERS, INC.
AN EARTH TECH COMPANY – RI COA A-14,324
EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 280 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/26/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

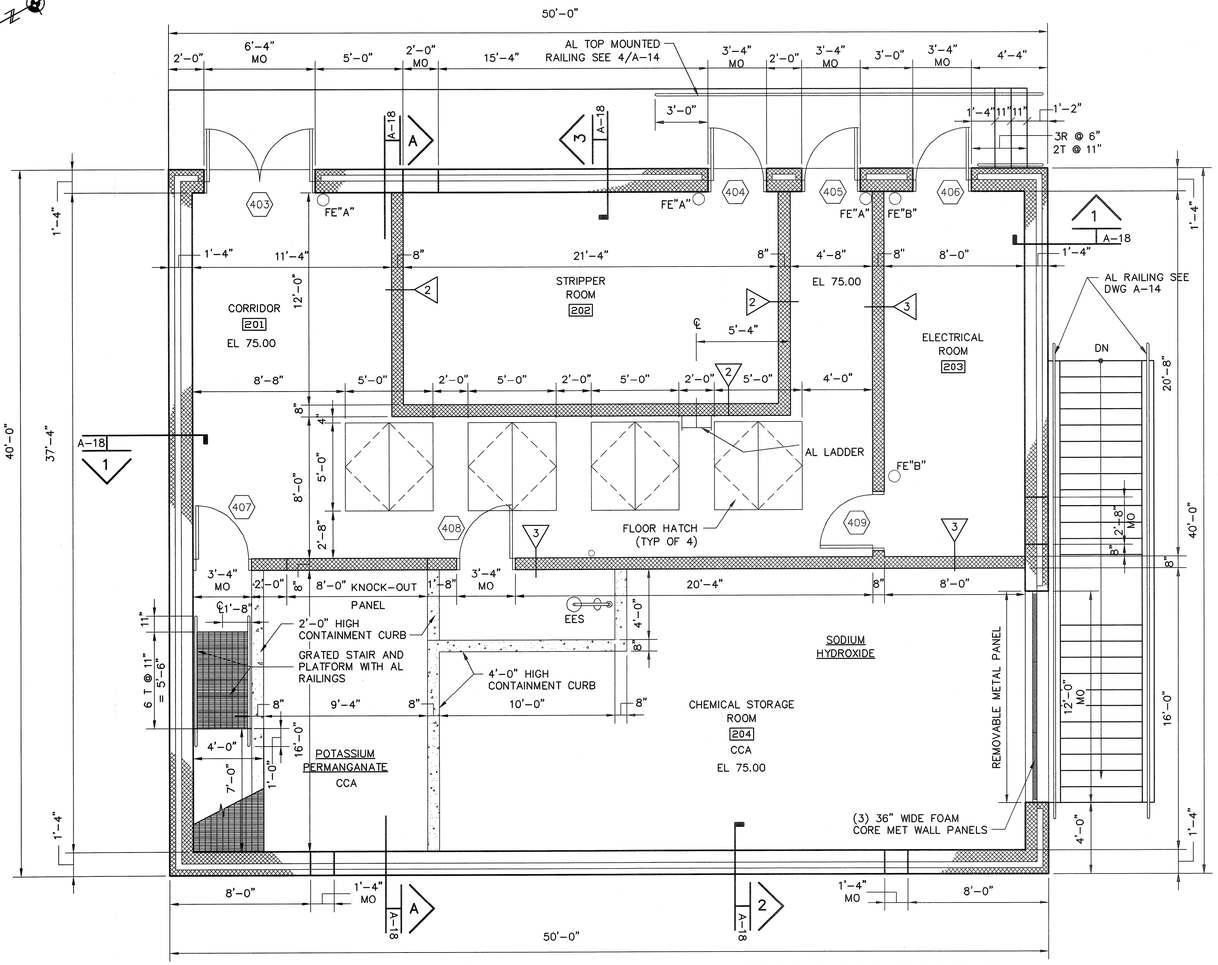
ROBERT H. SHELDON 4103 REGISTERED PROFESSIONAL ENGINEER
5/19/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
PUMP LEVEL FLR PLN, SCHEDULES, AND DETAILS

DESIGNED BY ARN	DWG SCALE AS NOTED
DRAWN BY ECD	CONTRACT NO
CHECKED BY ARN	DATE OCTOBER 31, 2006

A–17
SHEET OF

PLOT TIME/DATE Created: 05/27/2008 11:34 AM



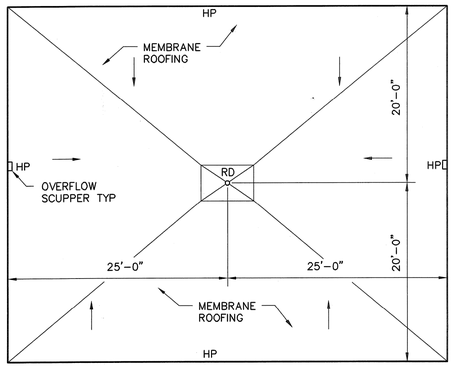
GROUND LEVEL FLOOR PLAN – EL. 75.00'

SCALE: 1/4" = 1'-0"

*NOTES: 1. CCA CHEMICAL CONTAINMENT AREA WITH LINER SEE SPECIFICATION SECTION 09661– LINERS FOR CHEMICAL CONTAINMENT AREAS

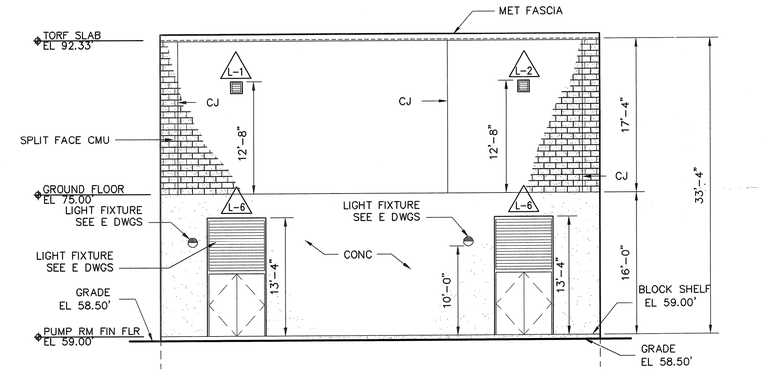
2. SEE DWG A-1 FOR PARTITION TYPES

3. SEE DWG A-17 FOR ROOM FINISH SCHEDULE AND DOOR SCHEDULE



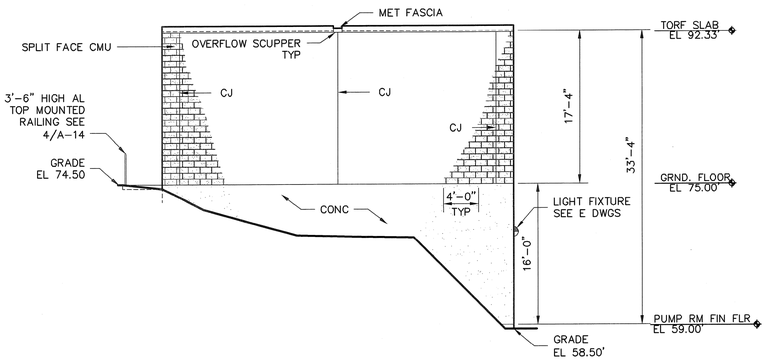
ROOF PLAN

SCALE: 1/8" = 1'-0"



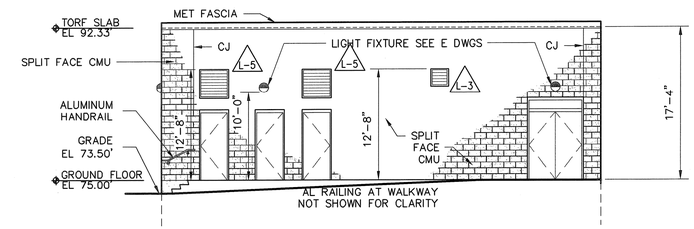
WEST ELEVATION

SCALE: 1/8" = 1'-0"



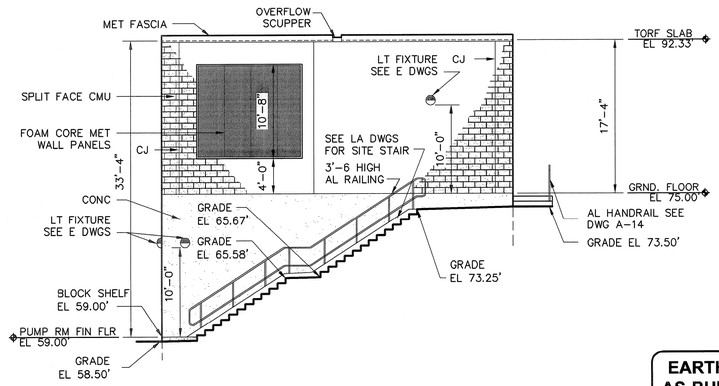
NORTH ELEVATION

SCALE: 1/8" = 1'-0"



EAST ELEVATION

SCALE: 1/8" = 1'-0"



SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

EARTH TECH AS-BUILT FILE MAY 2008

TAMS ARCHITECTS & ENGINEERS, INC.
AN EARTH TECH COMPANY – RI COA A-14,324

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFP/ POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		9/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND

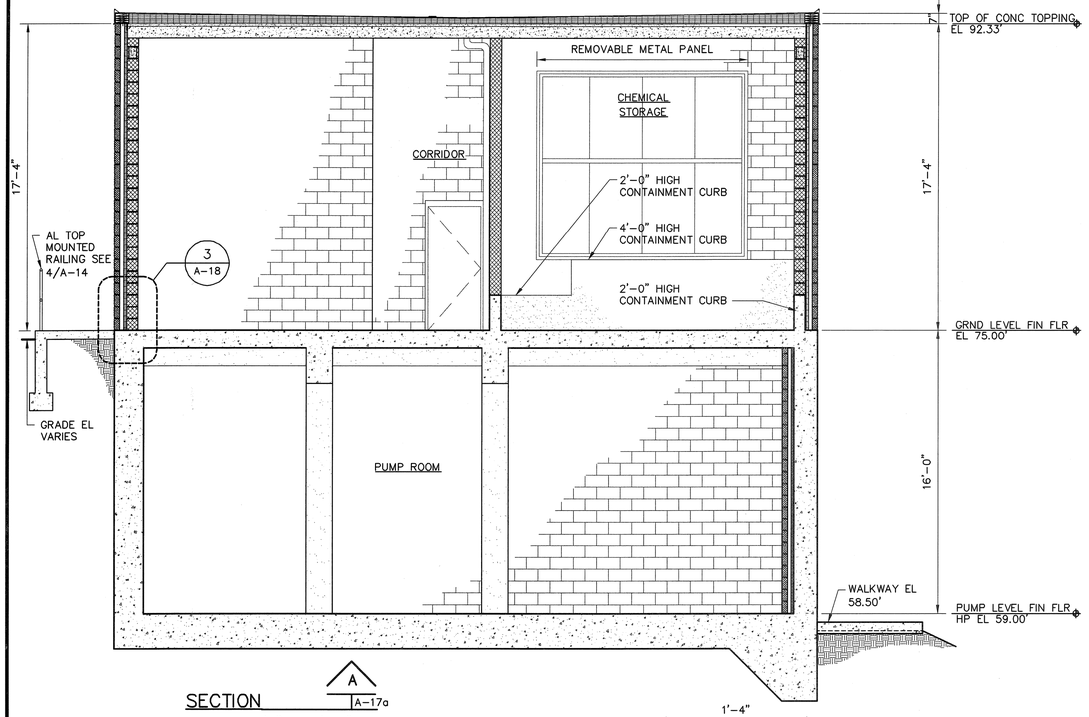
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
GROUND LEVEL PLAN, ELEVATIONS, AND DETAILS

DESIGNED BY ARN	DWG SCALE AS NOTED
DRAWN BY ECD	CONTRACT NO
CHECKED BY ARN	DATE OCTOBER 31, 2006

A–17a

SHEET OF

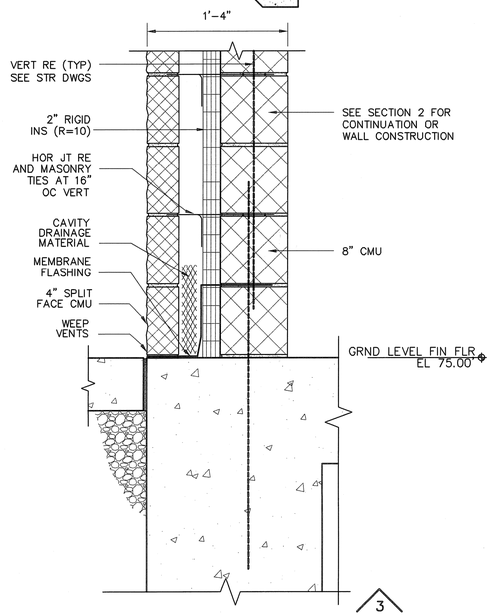
Plot File Date Created: 05/22/2008 11:34 AM



A A-17a

SECTION

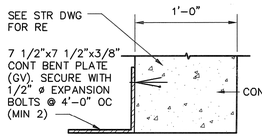
SCALE: 1/4" = 1'-0"



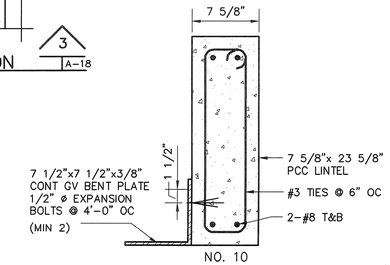
3 A-18

PARTIAL WALL SECTION

SCALE: 1 1/2" = 1'-0"



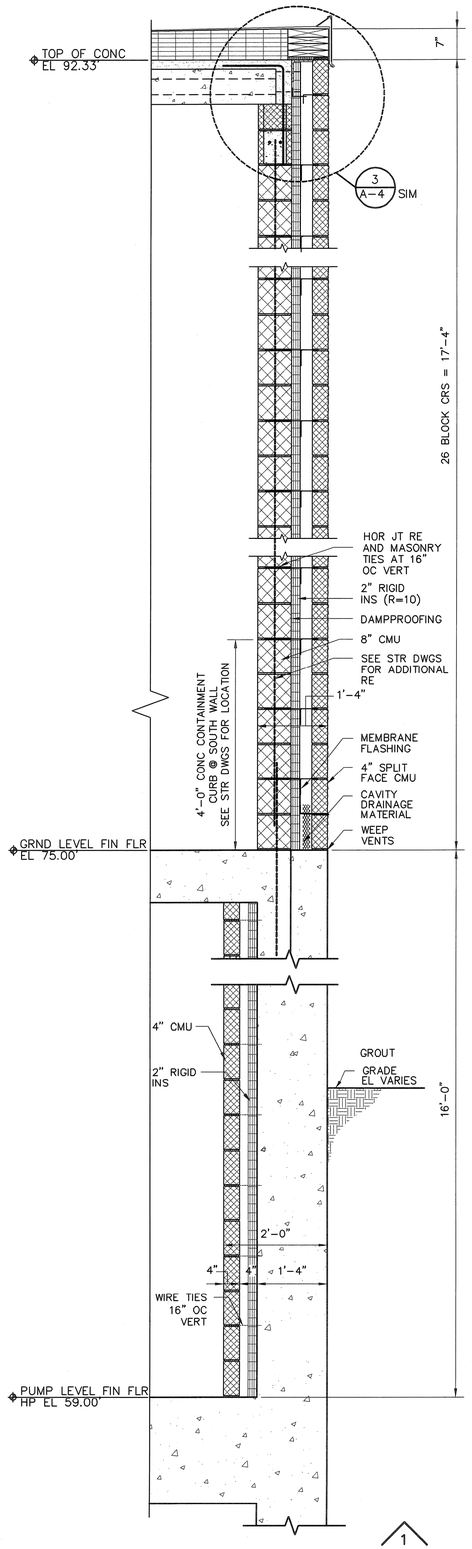
NO. 9



NO. 10

CONCRETE LINTEL SCHEDULE

SCALE:1 1/2"=1'-0"

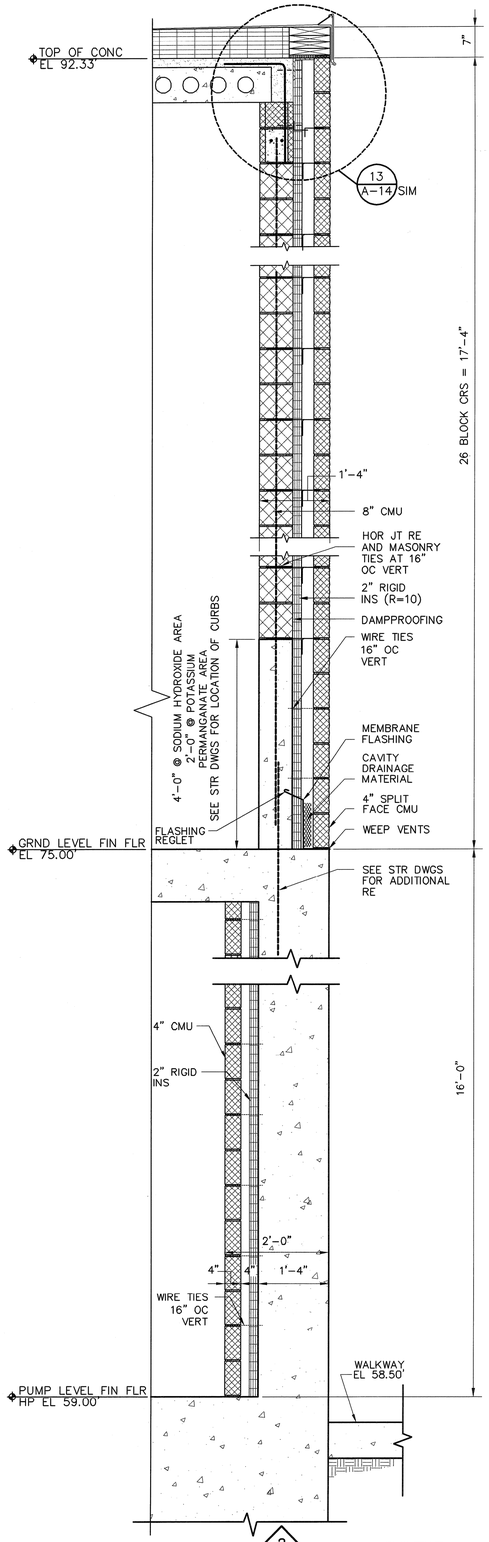


1 A-17, A-17a

SECTION THRU NORTH AND SOUTH WALL

EAST WALL SIMILAR

SCALE: 3/4" = 1'-0"



2 A-17, A-17a

SECTION THRU WEST WALL

SCALE: 3/4" = 1'-0"

EARTH TECH AS-BUILT FILE MAY 2008

TAMS ARCHITECTS & ENGINEERS, INC.
AN EARTH TECH COMPANY – RI COA A-14,324

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300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
A	REV. A CLIENT REVIEW		7/22/05
B	REV. B AGENCY REVIEW		8/16/05
0	ISSUED FOR CONSTRUCTION		10/28/05
1	ISSUED FOR RFI POSTED SET		10/31/06
2	AS-BUILT DRAWING FILE	DPB	MAY 2008

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 5/27/09

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
SECTIONS AND DETAILS

DESIGNED BY ARN	DWG SCALE AS NOTED
DRAWN BY ECD	CONTRACT NO
CHECKED BY ARN	DATE OCTOBER 31, 2006

A-18

SHEET OF

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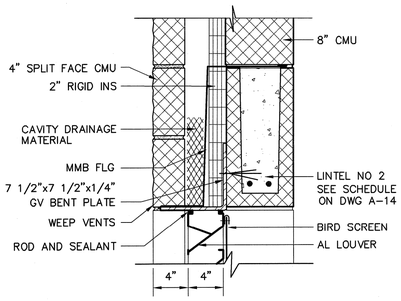
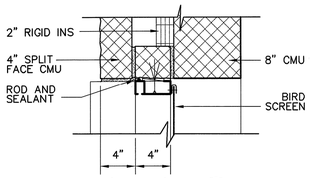
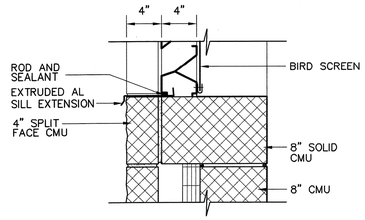


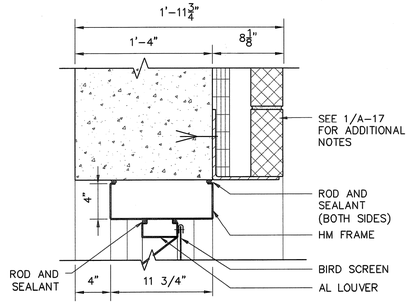
DETAIL (HEAD) 1 A-18a
SCALE: 1 1/2" = 1'-0"



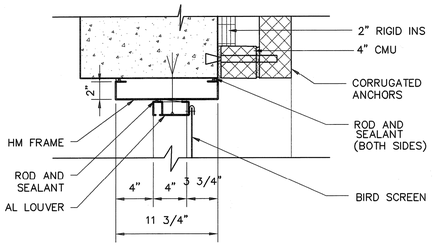
DETAIL (JAMB) 2 A-18a
SCALE: 1 1/2" = 1'-0"



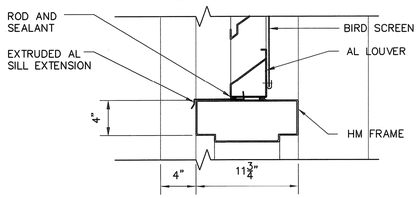
DETAIL (SILL) 3 A-18a
SCALE: 1 1/2" = 1'-0"



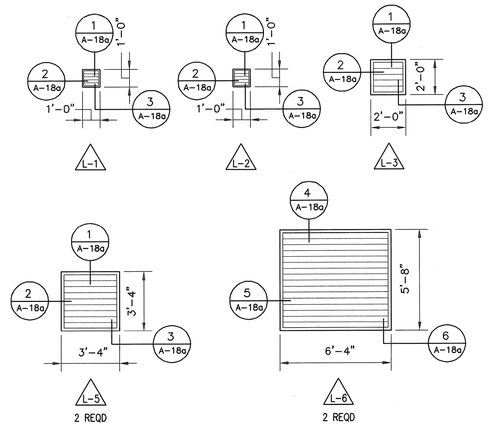
DETAIL (HEAD) 4 A-18a
SCALE: 1 1/2" = 1'-0"



DETAIL (JAMB) 5 A-18a
SCALE: 1 1/2" = 1'-0"



DETAIL (SILL) 6 A-18a
SCALE: 1 1/2" = 1'-0"



LOUVER TYPES
SCALE: 1/4" = 1'-0"

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
A	REV. A CLIENT REVIEW		7/22/05
B	REV. B AGENCY REVIEW		8/16/05
0	ISSUED FOR CONSTRUCTION		10/28/05
1	ISSUED FOR RFI POSTED SET		10/31/06
2	AS-BUILT DRAWING FILE	DPB	MAY 2008

TAMS ARCHITECTS & ENGINEERS, INC.
AN EARTH TECH COMPANY - RI COA A-14,324

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ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER

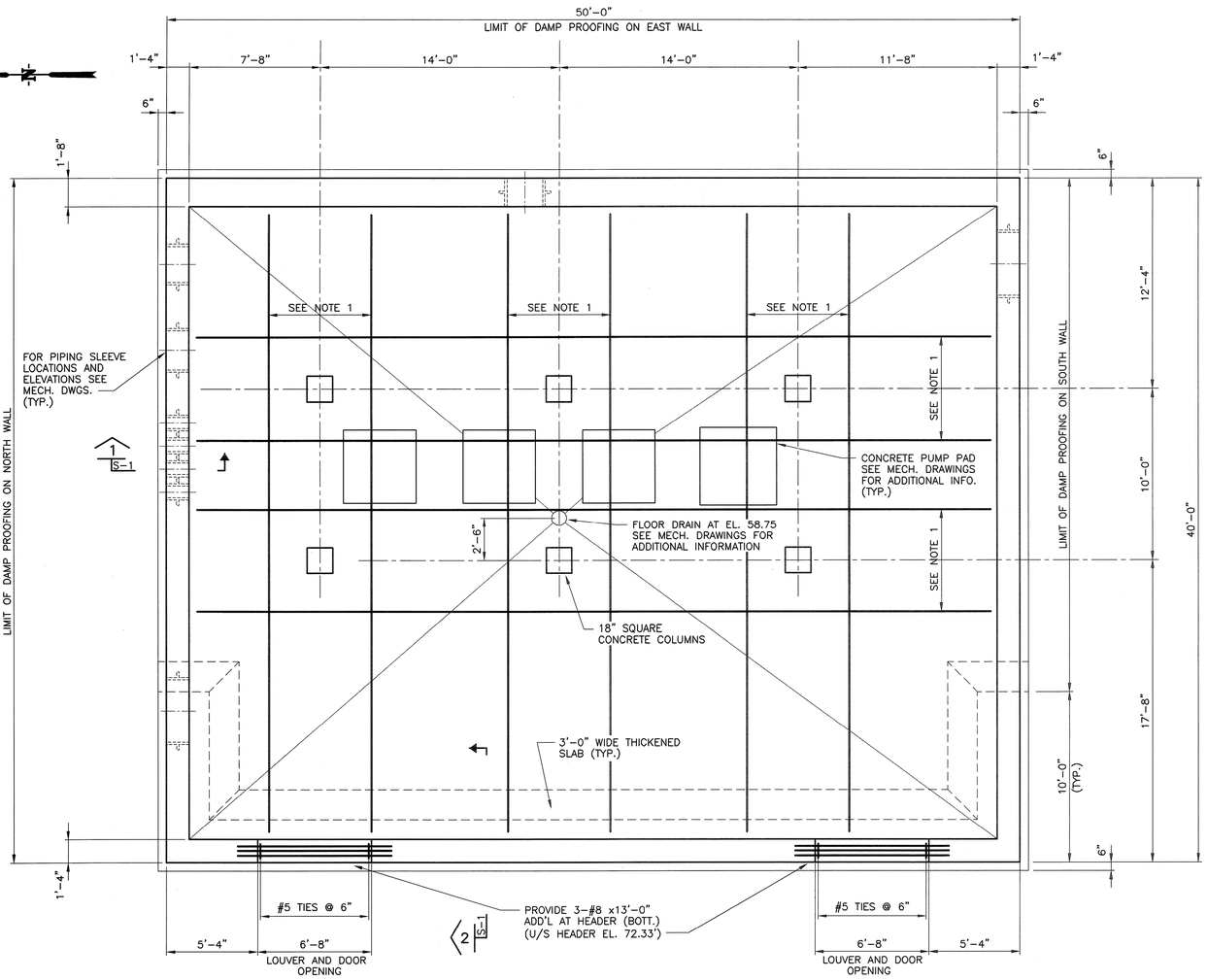
EARTH TECH AS-BUILT FILE MAY 2008

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
LOUVER DETAILS

DESIGNED BY ARN	DWG SCALE AS NOTED
DRAWN BY ECD	CONTRACT NO
CHECKED BY ARN	DATE OCTOBER 31, 2006

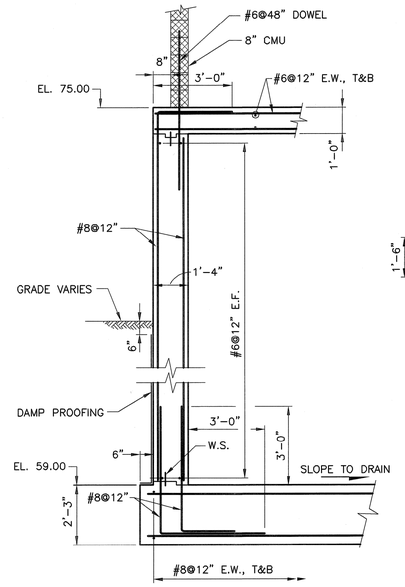
A-18a
SHEET OF

PLOT FILE ISSUE LASTSAVED: 2007/11/7/2008 11:34 AM

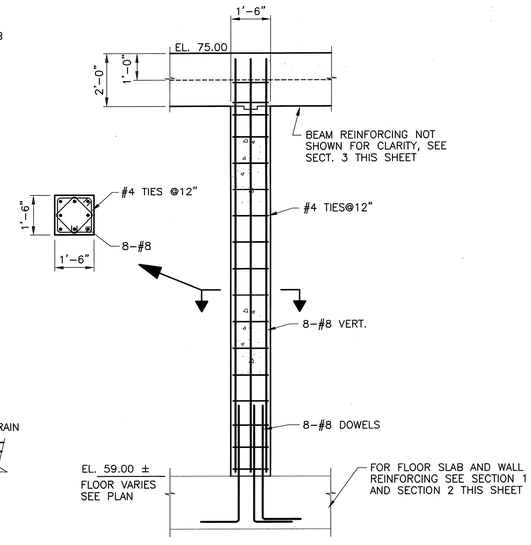


FOUNDATION PLAN AT ELEV. 59.00
SCALE: 1/4" = 1'-0"

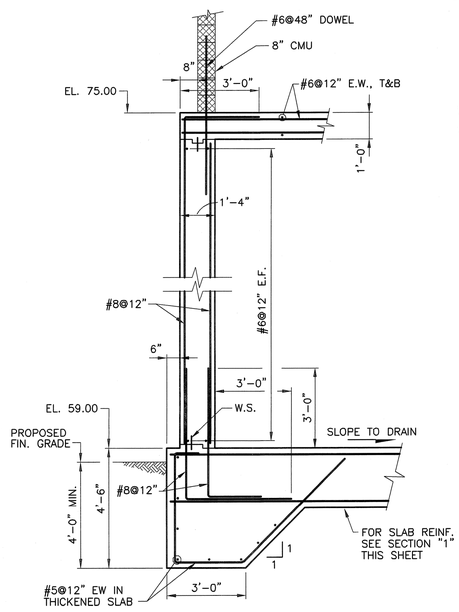
NOTES:
1. PROVIDE 7-#9@12 ADDITIONAL REINFORCING TOP AND BOTTOM CENTERED ON COLUMNS, ALTERNATE WITH TYPICAL SLAB REINFORCING.
2. MINIMUM CONCRETE FLOOR SLAB THICKNESS TO BE 2'-0".



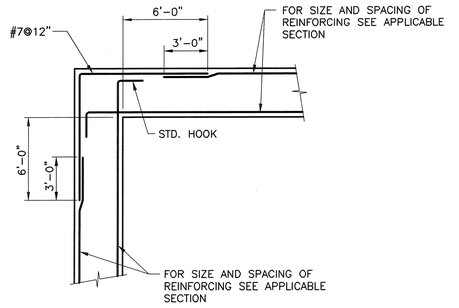
SECTION 1/S-1
SCALE: 3/8" = 1'-0"



TYPICAL COLUMN REINFORCING DETAIL
NOT TO SCALE



SECTION 2/S-1
SCALE: 3/8" = 1'-0"



TYPICAL CORNER REINFORCING DETAIL
NOT TO SCALE

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/18/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05
NO.	REVISIONS	BY	DATE

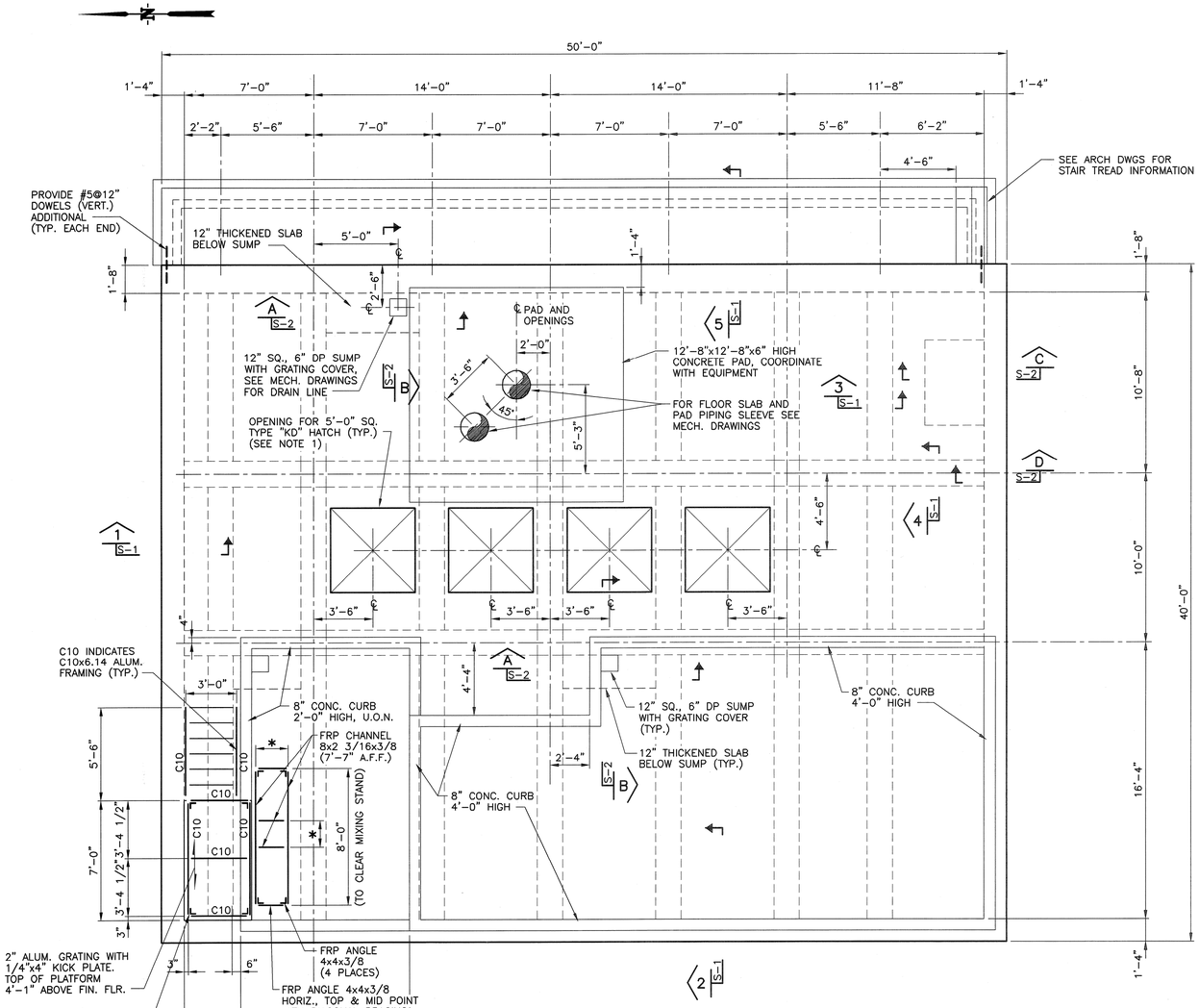
ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER
3/7/09

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
STRUCTURAL PLANS AT EL. 59.00

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY DPB	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

S-1
SHEET OF

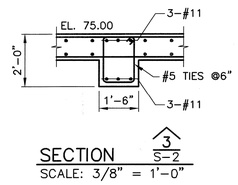
Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\STRUC\69993-11_S1-3.DWG
Plot File Date Created: Sep/22/2008 11:34 AM



GROUND FLOOR PLAN AT ELEV. 75.00

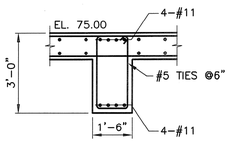
SCALE: 1/4" = 1'-0"

NOTE:
1. HATCH COVERS TO BE DESIGNED FOR 7,200 LBS WHEEL LOAD.
2. * – INDICATES DIMENSIONS TO BE COORDINATED WITH EQUIPMENT MANUFACTURER.



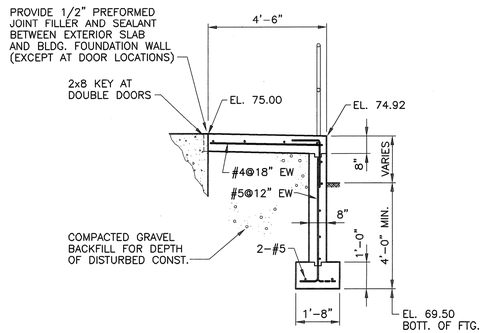
SECTION 3 S-2
SCALE: 3/8" = 1'-0"

NOTE:
TYPICAL FOR ALL EAST-WEST BEAMS.

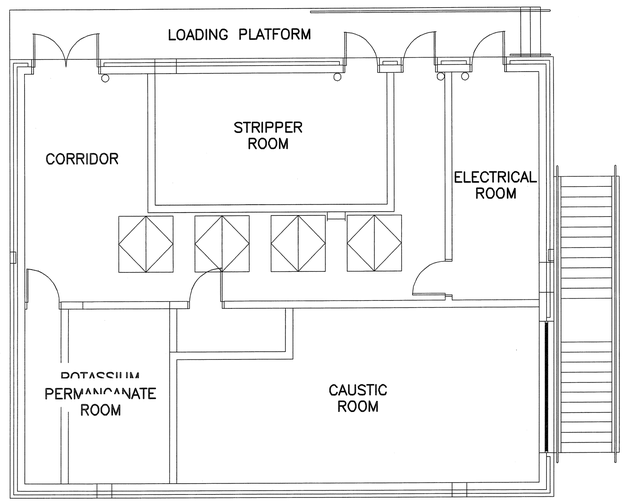


SECTION 4 S-2
SCALE: 3/8" = 1'-0"

NOTE:
TYPICAL FOR ALL NORTH-SOUTH BEAMS.



SECTION 5 S-2
SCALE: 3/8" = 1'-0"

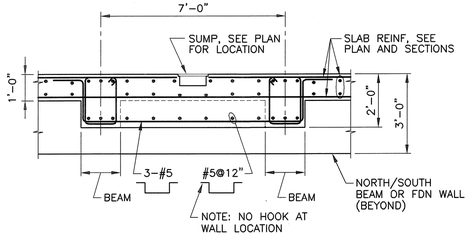


FLOOR LOADING PLAN

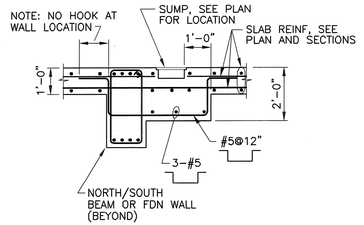
NOT TO SCALE

FLOOR LIVE LOADS:

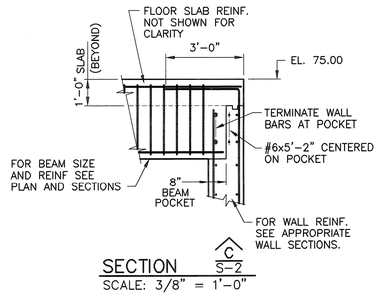
CAUSTIC SODA ROOM	500 PSF
POTASSIUM PERMANGANATE ROOM	300 PSF
LOADING PLATFORM	200 PSF
STRIPPER ROOM	3500 LB
CORRIDOR	7,200 LB WHEEL LOAD
ELECTRICAL ROOM	250 PSF



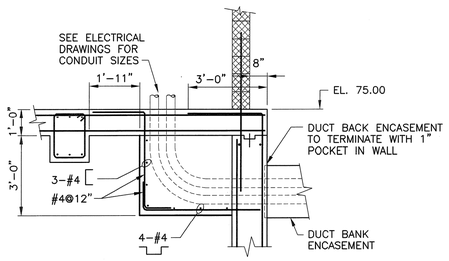
SECTION A S-2
SCALE: 3/8" = 1'-0"



SECTION B S-2
SCALE: 3/8" = 1'-0"



SECTION C S-2
SCALE: 3/8" = 1'-0"



SECTION D S-2
SCALE: 3/8" = 1'-0"

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
A Tyco International Ltd. Company
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FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
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0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 41103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND 31/04

PAWTUCKET, RHODE ISLAND

PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION

STRUCTURAL PLAN AT EL. 75.00

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY DPB	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

S-2

SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\STRUC\69993-11_S1-3.DWG
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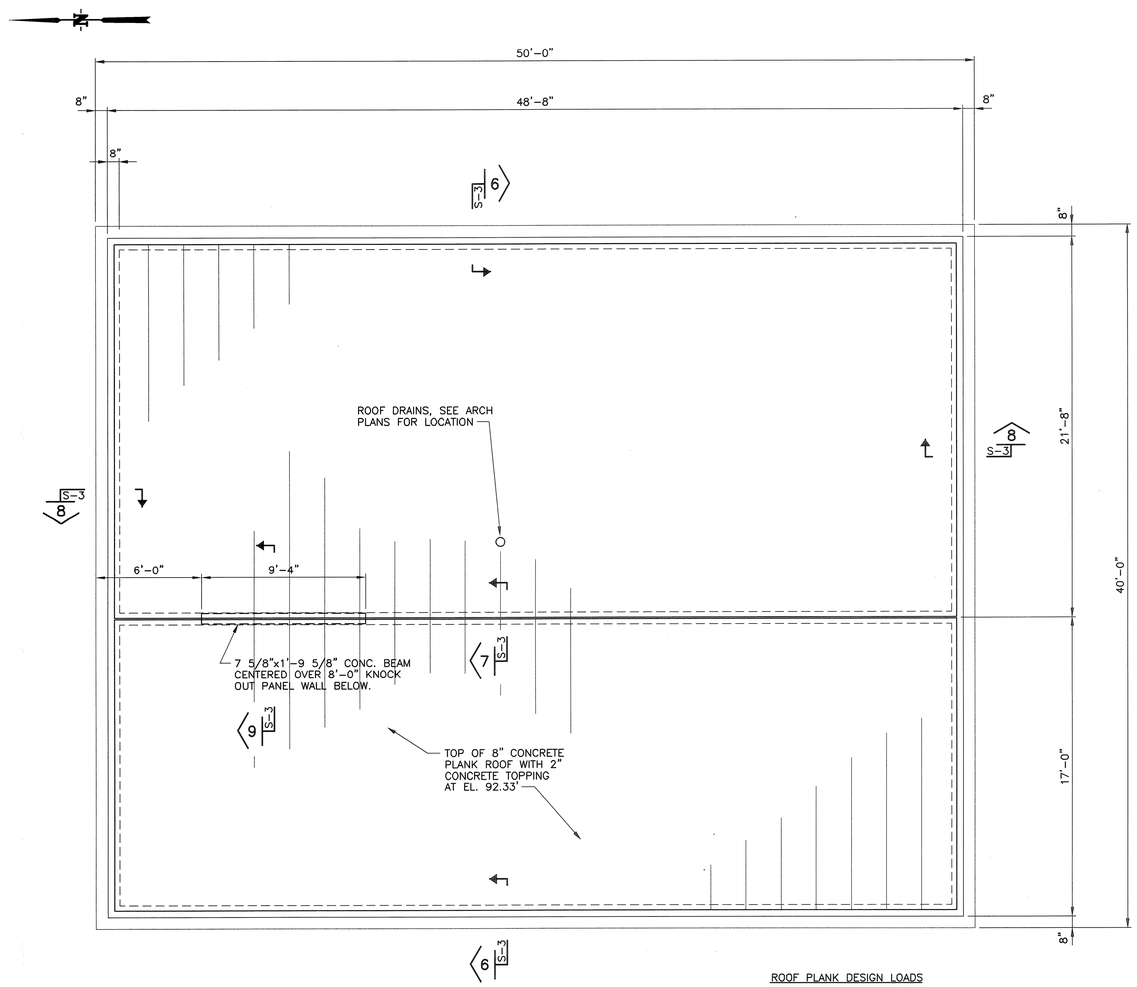
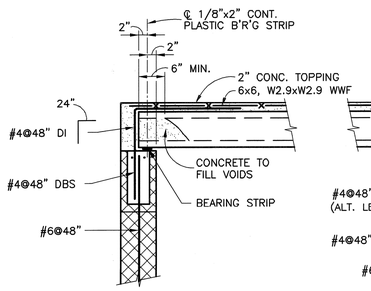


ROOF PLAN
SCALE: 1/4" = 1'-0"

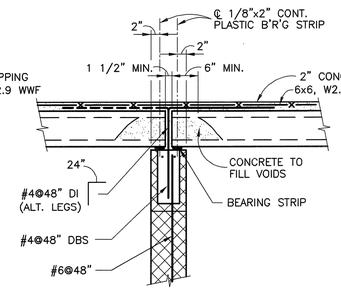
ROOF PLANK DESIGN LOADS

PLANK AND TOPPING	82 LBS PER SQ. FT.
INSULATION AND MEMBRANE	6 LBS PER SQ. FT.
SUSPENDED MECHANICAL	10 LBS PER SQ. FT.
LIVE LOAD	30 LBS PER SQ. FT.
EYE BOLT HANGER LOAD	7,200 LBS



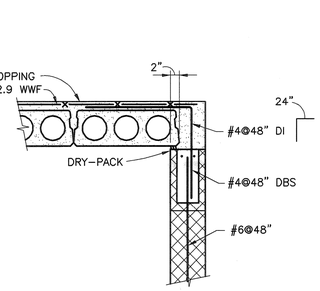
EXTERIOR BEARING WALL

SECTION 6/S-3
NOT TO SCALE



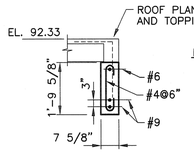
INTERIOR BEARING WALL

SECTION 7/S-3
NOT TO SCALE



EXTERIOR WALL

SECTION 8/S-3
NOT TO SCALE



NOTE:
PROVIDE #4 PLANK DOWELS SIMILAR TO SECTION 8.

SECTION 9/S-2
SCALE: 3/8" = 1'-0"

EARTH TECH
AS-BUILT FILE
MAY 2008

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FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
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A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER
31709

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
STRUCTURAL ROOF PLAN

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY DPB	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

S-3
SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\STRUC\69993-11_S1-3.DWG
Plot File Date Created: Sep/22/2008 11:34 AM

CONCRETE PROTECTION FOR REINFORCEMENT(A)					
MEMBER		EXPOSED TO			
		AIR	WEATHER & AIR OVER LIQUID	EARTH & LIQUID	SALT WATER
FOOTING		—	—	2"(B)	4"
WALL COLUMN BEAM		1 1/2"	2"	2"(B)	3"(B)
SLAB	TOP	1 1/2"(C)	2"	2"	3"
	BOTTOM	3/4" (D)	2"	2"(B)	3"(B)

(A) APPLICABLE TO ALL CAST-IN-PLACE CONCRETE, EXCEPT AS OTHERWISE SHOWN ON THE DRAWINGS.

(B) INCREASE 1" WHEN CAST AGAINST EARTH.

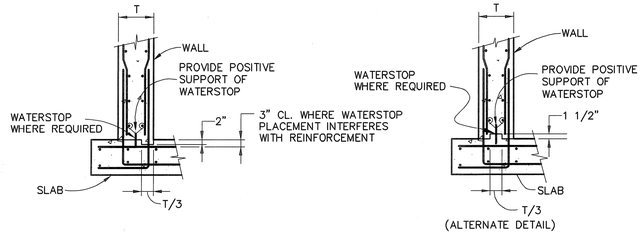
(C) 3/4" WHEN MEMBRANE OR WEARING SURFACE USED,

(D) 1 1/2" WHERE REQ'D TO CLEAR WATERSTOP.

MINIMUM RE-BAR SPLICE LENGTHS (in.)* fy=60,000 f'c=4,500		
BAR SIZE	TOP BARS**	OTHER BARS
4	20	16
5	24	18
6	26	20
7	39	30
8	46	35
9	52	40
10	57	44
11	64	49

* THIS TABLE IS BASED ON NORMAL WEIGHT CONCRETE, UNCOATED BARS, CLEAR SPACING NOT LESS THAN FOUR BAR DIAMETERS, AND CLEAR COVER NOT LESS THAN TWO BAR DIAMETERS. WHERE SPACING BETWEEN BARS IS LESS THAN FOUR BAR DIAMETERS, OR CLEAR COVER IS LESS THAN TWO BAR DIAMETERS, INCREASE SPLICE LENGTHS SHOWN BY 67%.

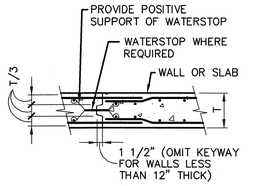
** HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS AS DEFINED BY A.C.I. 318-95.



(ALTERNATE DETAIL)

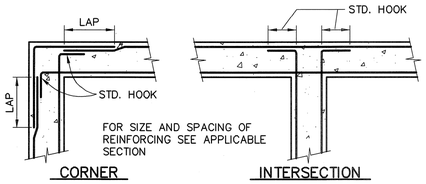
CONSTRUCTION JOINT DETAILS

(UNLESS OTHERWISE NOTED)



TYPICAL KEYWAY DETAIL

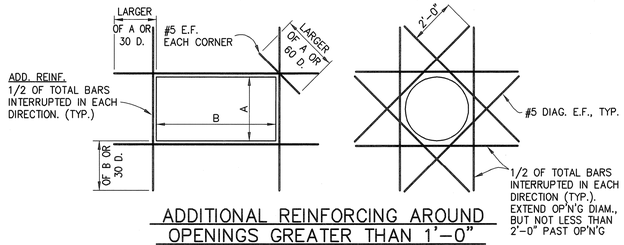
(UNLESS OTHERWISE NOTED)



WALL REINFORCING DETAILS

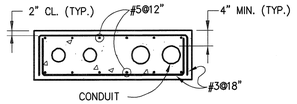
(UNLESS OTHERWISE NOTED)

NOTE: VERTICAL REINFORCING NOT SHOWN.



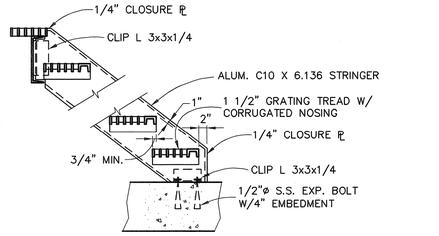
ADDITIONAL REINFORCING AROUND OPENINGS GREATER THAN 1'-0"

(UNLESS OTHERWISE NOTED)



TYPICAL DUCTBANK REINFORCING DETAIL

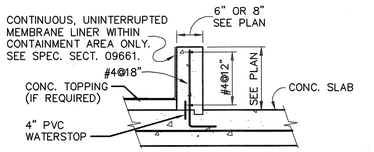
FOR SIZE OF DUCTBANK AND CONDUITS SEE ELECTRICAL DRAWINGS



TYPICAL GRATING STAIR DETAIL

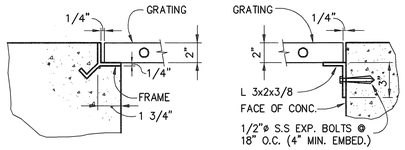
NOT TO SCALE

NOTE: ALL ALUMINUM CONSTRUCTION



TYPICAL CONTAINMENT WALL DETAIL

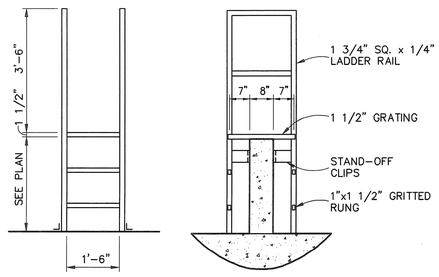
NOT TO SCALE



END SUPPORT END SUPPORT

TYPICAL GRATING DETAILS

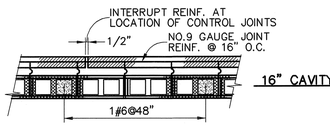
NOT TO SCALE



ELEVATION SECTION

EXTENDED WALKTHRU FRP LADDER

SCALE: 1/2"=1'-0"

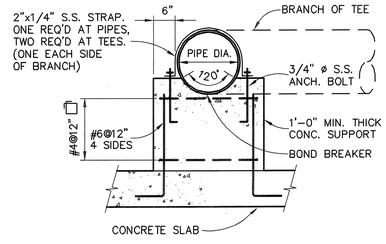


TYPICAL MASONRY REINFORCING DETAILS

NOT TO SCALE

NOTES:

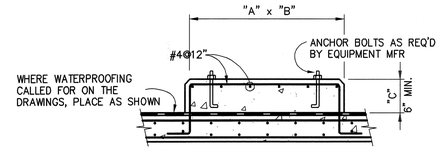
1. VERTICAL REINFORCING SHALL BE LAID OUT SUCH THAT EACH SIDE OF OPENINGS, CORNERS, INTERSECTIONS AND ENDS OF WALLS ARE REINFORCED.
2. VERTICAL REINFORCING AT SIDE OF OPENINGS SHALL BE CONTINUOUS THROUGH LINTELS.
3. PROVIDE 2-#5 HORZ. BARS AT TOP AND BOTTOM OF OP'NGS (EXTEND 25" PAST FACE OF OP'NG), AND AT KNOCK-OUT BLOCK BOND BEAM AT TOP OF WALL.



AT STRAIGHT PIPE OR TEE

TYPICAL PIPE SUPPORT DETAIL

NOT TO SCALE



EQUIPMENT PAD DETAIL

NOT TO SCALE

NOTE: CHEMICAL PUMP SUPPORTS TO BE FABRICATED FROM FRP MATERIALS.

STRUCTURAL NOTES

GENERAL

1. THESE NOTES AND TYPICAL DETAILS SHALL APPLY TO ALL STRUCTURES IN THE PROJECT, AS APPLICABLE.
2. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUCTION WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, HEATING AND VENTILATING DRAWINGS AND SPECIFICATIONS. DRAWINGS SHALL BE REFERRED TO FOR SIZE AND LOCATION OF OPENINGS FOR VENTS, PIPES, DUCTS, ETC.
3. ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PORTION OF WORK.
4. BUILDING CODE: RHODE ISLAND STATE BUILDING CODE (1998) AND AMENDMENTS.
5. DESIGN LIVE LOADS
   ROOF -30 PSF
   FLOORS -AS INDICATED ON PLANS

EARTHQUAKE

SEISMIC HAZARD GROUP	II
SEISMIC PERFORMANCE CATEGORY	C
SOIL PROFILE TYPE	S1
BASIC STRUCTURAL SYSTEM	LOAD BEARING MASONRY SHEAR WALLS
RESPONSE MODIFICATION FACTOR (R)	3 1/2
DEFLECTION AMPLIFICATION FACTOR (Cd)	3
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

FOUNDATIONS

1. NO BACKFILL SHALL BE PLACED AGAINST FOUNDATION WALLS WHICH HAVE NOT BEEN CURED FOR AT LEAST 7 DAYS.
2. BACKFILL SHALL NOT BE PLACED AGAINST FOUNDATION WALLS UNTIL SUPPORTING FRAMED SLABS HAVE BEEN PLACED AND THE FORMS REMOVED. BACKFILL SHALL BE PLACED AND COMPACTED ON ALL SIDES OF STRUCTURE SIMULTANEOUSLY.
3. NO FOOTINGS SHALL BE PLACED ON LOOSE OR DISTURBED SOILS, IN WATER NOR ON FROZEN GROUND.
4. FOUNDATION MAT SHALL BE PLACED ON UNDISTURBED MATERIAL. A MINIMUM OF 12 INCHES OF COMPACTED GRAVEL SHALL BE PLACED BENEATH ALL OTHER FOUNDATION MATS, FOOTINGS, AND SLAB-ON-GRADE, UNLESS OTHERWISE NOTED.
5. COMPACT ALL FILL UNDER THE SLAB-ON-GRADE AND ANY OTHER AREAS NOTED TO AT LEAST 95% OF MAXIMUM DENSITY AS SPECIFIED. VERIFY FIELD DENSITY AS SPECIFIED.
6. STRUCTURES MUST BE PROTECTED AGAINST BUOYANCY AT ALL TIMES DURING CONSTRUCTION.

CONCRETE

1. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI, UNLESS OTHERWISE NOTED.
2. REINFORCING STEEL SHALL COMPLY WITH THE FOLLOWING:
   A. ASTM DESIGNATION A615 GRADE 60.
   B. REINFORCEMENT SHALL COMPLY WITH THE TABLE, "CONCRETE PROTECTION FOR REINFORCEMENT", UNLESS OTHERWISE NOTED.
   C. FOR MINIMUM BAR SPLICE LENGTHS SEE TABLE SHOWN ON THIS DRAWING.
3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
4. CONTRACTOR SHALL COORDINATE LOCATIONS OF FLOOR DRAINS, PIPING, ELECTRICAL CONDUITS, GROUNDS, SLEEVES, INSERTS, ETC. WITH CONCRETE CONSTRUCTION.
5. CONSTRUCTION JOINTS IN WALLS AND SLABS SHALL BE KEYED. USE OF CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE DRAWINGS WILL REQUIRE APPROVAL OF THE ENGINEERS.
6. WATERSTOPS ARE NOT NECESSARILY SHOWN AT EVERY JOINT; BUT WHERE THEY ARE SHOWN, IT IS INTENDED THAT THEY BE COMPLETE AND CONTINUOUS THROUGHOUT THAT PARTICULAR STRUCTURE. WATERSTOPS IN VERTICAL JOINTS SHALL EXTEND TO THE ELEVATION OF FINISH GROUND GRADE, EXCEPT FOR TANKS THEY SHALL EXTEND FULL HEIGHT.
7. PROVIDE WALL SLEEVES WITH INTERMEDIATE WALL COLLARS AT ALL CAST/DUCTILE IRON AND PLASTIC PIPE PENETRATIONS, UNLESS OTHERWISE INDICATED.
8. PROVIDE ALL NECESSARY CHAIRS, CHAIR BARS, SPACERS ETC. WIRED SECURELY TO HOLD REINFORCING IN POSITION. THESE ACCESSORIES SHALL BE PLASTIC BOOTED WHERE CONCRETE IS TO BE EXPOSED TO WEATHER OR MOISTURE.
9. BEAMS AND COLUMNS SHALL NOT BE PENETRATED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.
10. ALL EXPOSED CORNERS OF CONCRETE BEAMS AND WALLS SHALL HAVE A 3/4" CHAMFER UNLESS OTHERWISE NOTED.

EarthTech
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300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/30/06
0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND

PAWTUCKET, RHODE ISLAND

PAWTUCKET REGIONAL WATER TREATMENT FACILITY

PKGS 11 & 12 - RAW WATER PUMP STATION

STRUCTURAL DETAILS AND NOTES

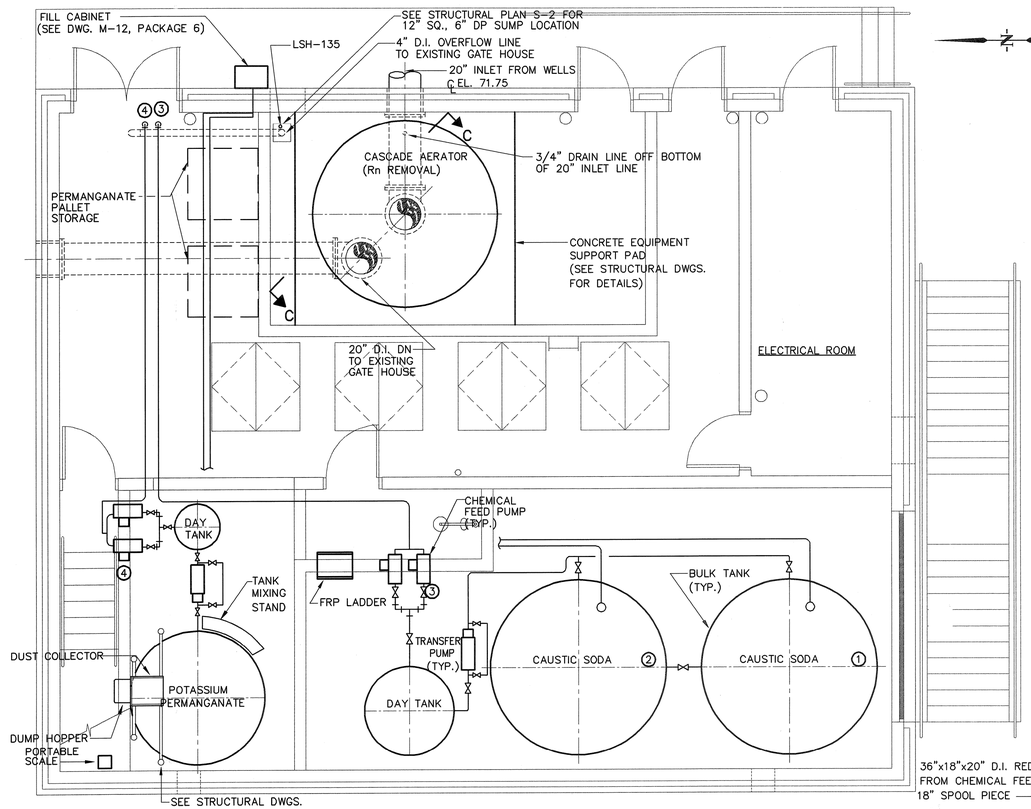
DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY DPB	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

EARTH TECH AS-BUILT FILE MAY 2008

S-4

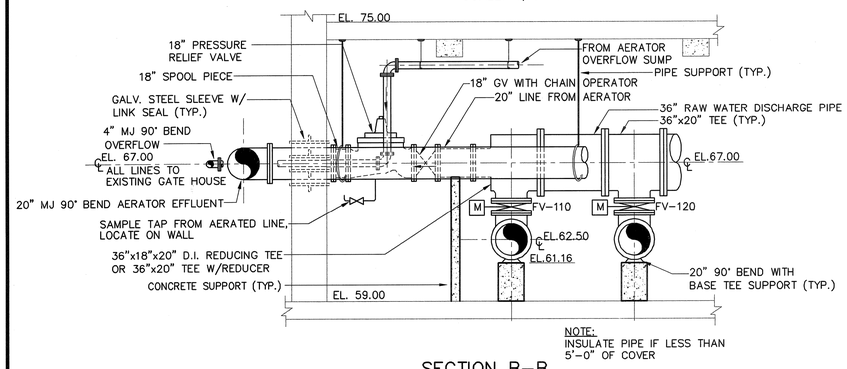
SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\STRUC\69993-11_S-4.DWG
Plot File Date Created: Sep/22/2008 11:34 AM



UPPER LEVEL PLAN–ELEVATION 75.00

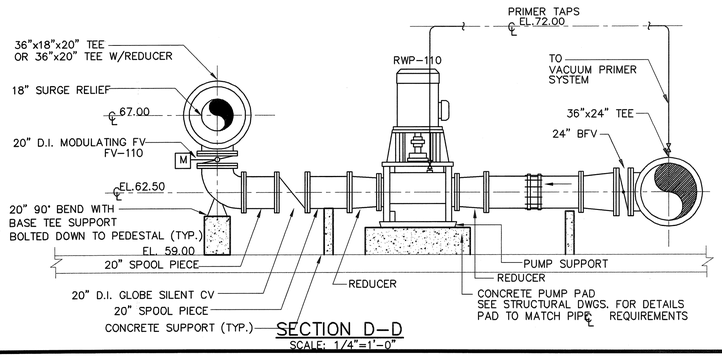
SCALE: 1/4"=1'-0"



NOTE:
INSULATE PIPE IF LESS THAN
5'-0" OF COVER

SECTION B–B

SCALE: 1/4"=1'-0"

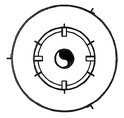


SECTION D–D

SCALE: 1/4"=1'-0"

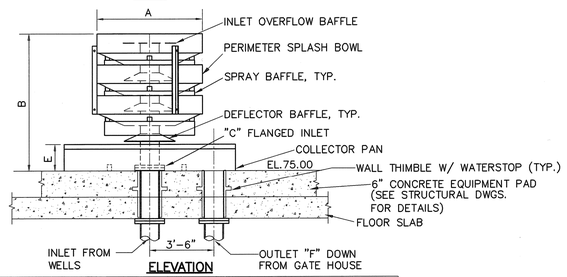
CHEMICAL FEED KEY

1. 2"ø CPVC CAUSTIC SODA FILL LINE
2. 2"ø CPVC CAUSTIC SODA FILL LINE
3. 1"ø CPVC CAUSTIC SODA TO RAW WATER (pH ADJUSTMENT)
4. 1"ø POTASSIUM PERMANGANATE TO RAW WATER (OXIDANT)



NOTE:
ALL ALUMINUM CONSTRUCTION.

PLAN



ELEVATION

AERATOR				COLLECTOR PAN		
CAPACITY GPM	DIAMETER A	HEIGHT B	INLET C	DIAMETER D	HEIGHT E	OUTLET F
3500	8'-6"	8'-6"	20	10'-6"	12"	20

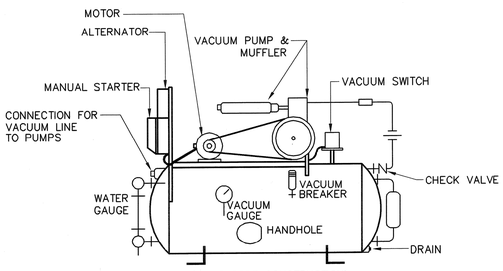
NATURAL DRAFT AERATION WITH COLLECTOR PAN CASCADE AERATOR

SECTION C–C

NOT TO SCALE

GENERAL NOTE:

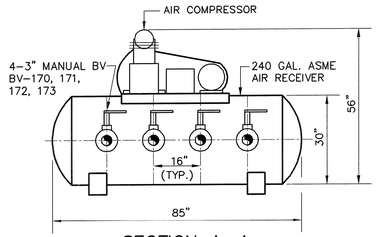
1. ALL PENETRATIONS SHALL HAVE FLEXIBLE JOINT (MJxMJ "FLEXIJOINT" OR EQUAL) ATTACHED TO THE OUTSIDE TO ALLOW FOR FOUNDATION SETTLEMENT AND PIPE FITTING INTEGRITY
2. ALL FITTINGS SHALL BE RESTRAINED.



(ASME CODE CONSTRUCTION)

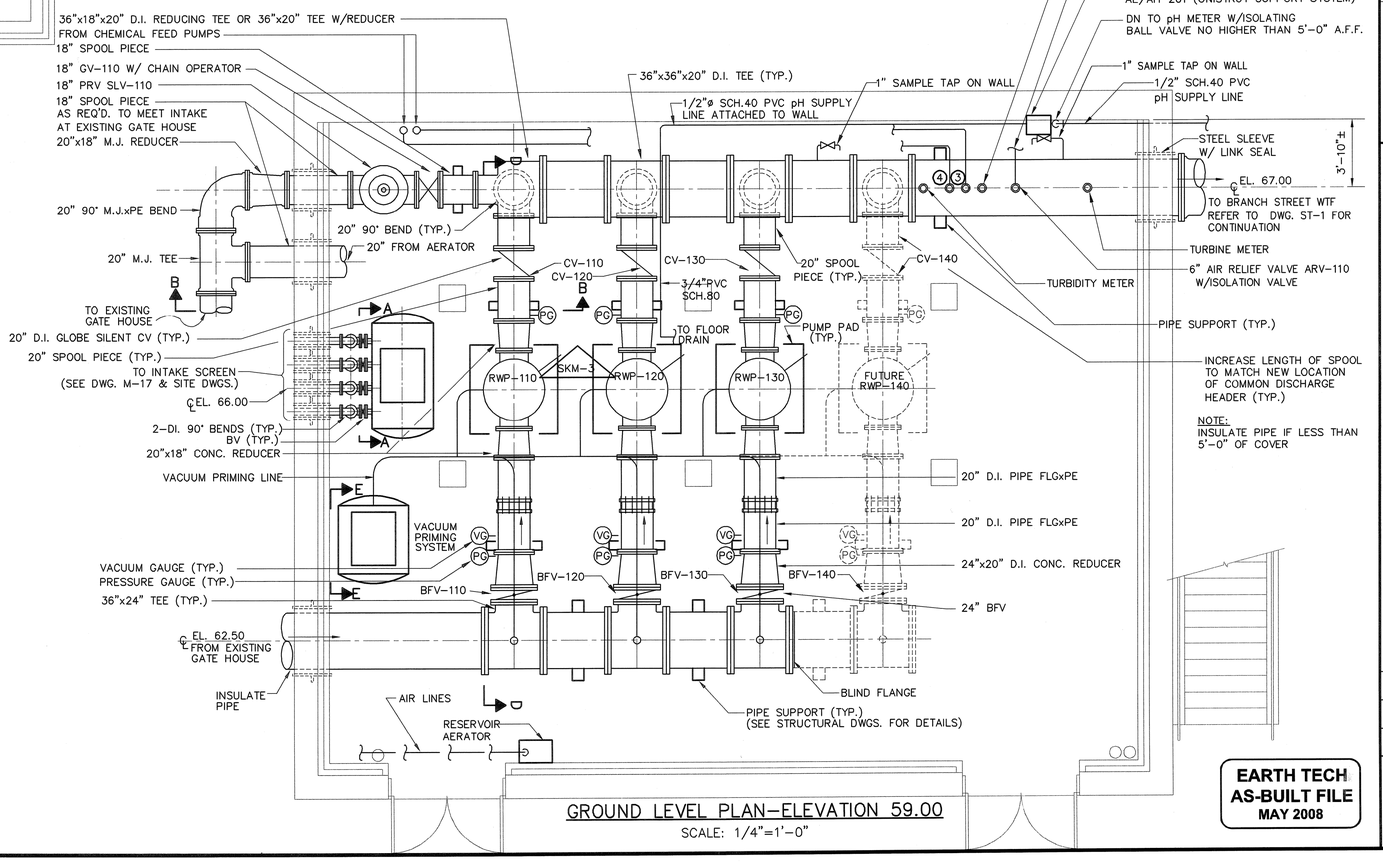
SECTION E–E

NOT TO SCALE



SECTION A–A

SCALE: 1/2"=1'-0"



GROUND LEVEL PLAN–ELEVATION 59.00

SCALE: 1/4"=1'-0"

EARTH TECH
AS-BUILT FILE
MAY 2008

EarthTech
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300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

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A	REV. A CLIENT REVIEW	A.R.	7/22/05

FULL SIZE DRAWING = 4"

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND 5/7/08

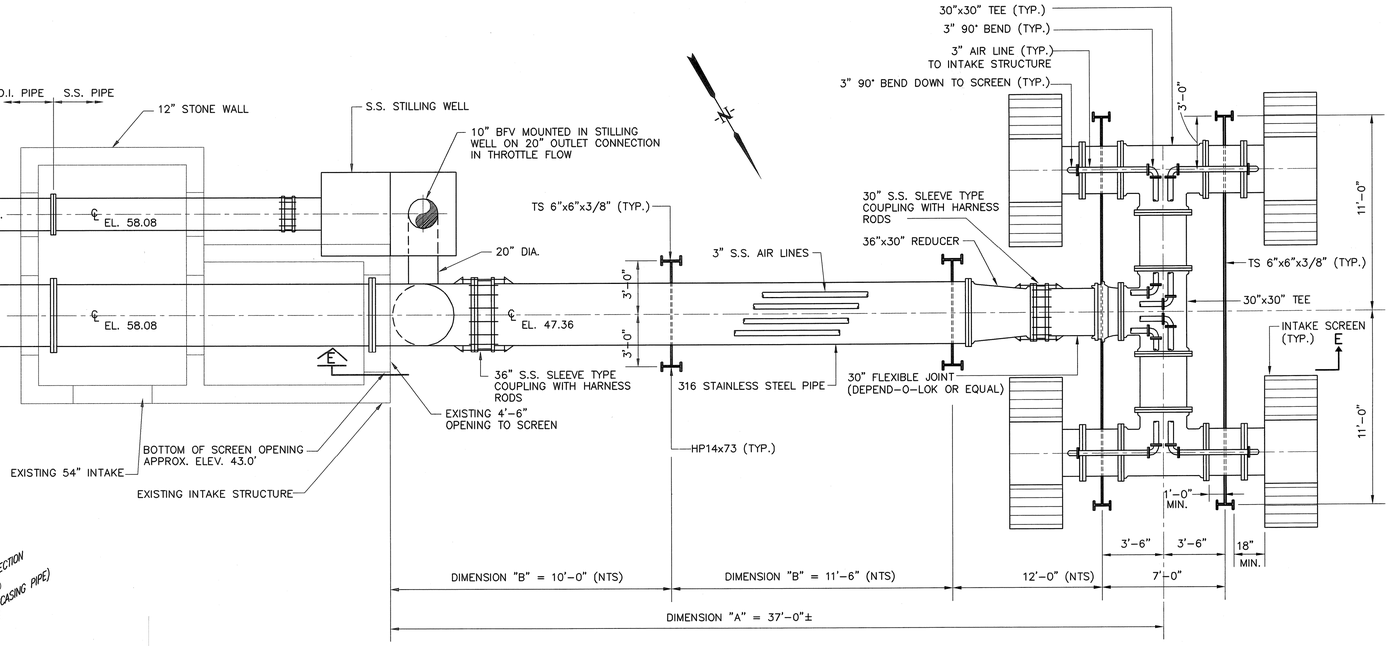
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
RAW WATER PUMPING STATION
PLAN AND SECTIONS

DESIGNED BY	DWG SCALE
	AS NOTED
DRAWN BY	CONTRACT NO
GLF	
CHECKED BY	DATE
ALR	OCTOBER 31, 2006

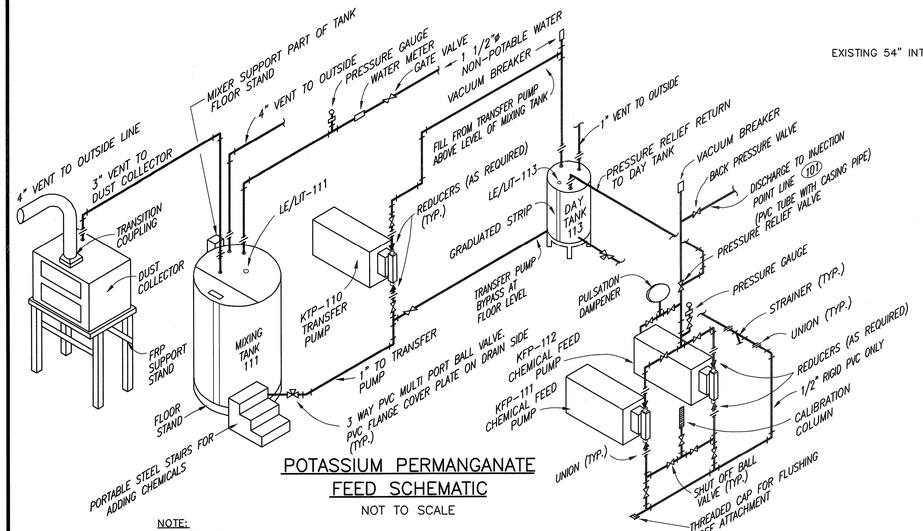
M–16

SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\MECH\69993M16-17.DWG
Plot File Date Created: Sep/22/2008 11:34 AM

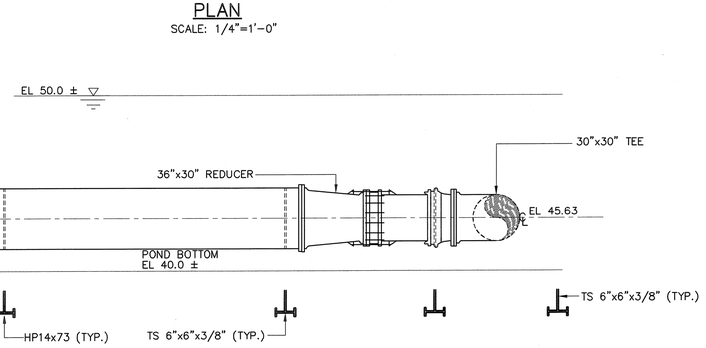


PLAN
SCALE: 1/4"=1'-0"



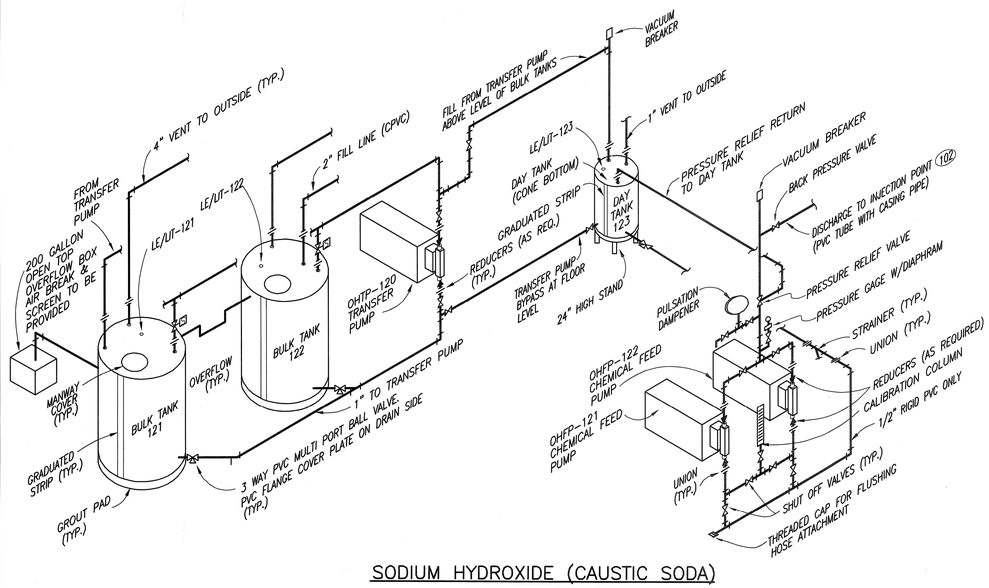
POTASSIUM PERMANGANATE FEED SCHEMATIC
NOT TO SCALE

NOTE:
NON POTABLE MAKE UP WATER TO MIXING TANK SHALL HAVE 3" AIR GAP TO PREVENT BACKFLOW.

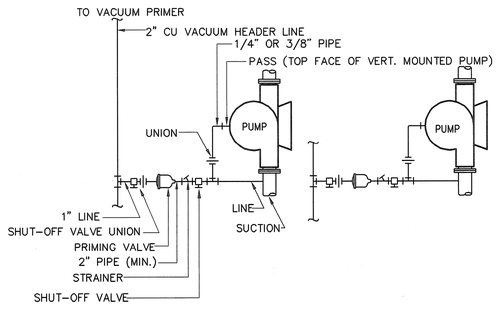


NOTE:
DUE TO SLOPE IN RESERVOIR BOTTOM CONTRACTOR IS REQUIRED TO PLACE OFFSET EXPANSION JOINTS, WEDGES, OR BENDS TO MEET CONNECTION AT PROPOSED INTAKE STRUCTURE.

SECTION E-E
SCALE: 1/4"=1'-0"



SODIUM HYDROXIDE (CAUSTIC SODA) FEED SCHEMATIC
NOT TO SCALE



SCHEMATIC OF PRIMER LOCATION
NOT TO SCALE

EARTH TECH AS-BUILT FILE MAY 2008

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300 BAKER AVENUE SUITE 280 CONCORD MA 01742 (978) 371-4000

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ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 5/1/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
CHEMICAL SCHEMATICS, INTAKE STRUCTURE PLAN AND SECTION

DESIGNED BY	DWG SCALE AS NOTED
DRAWN BY GLF	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2006

M-17
SHEET OF

Filename: L:\WORK\65993\CAD\AS-BUILT\(11-12) RWTP\MECH\69993M16-17.DWG
Plot File Date Created: Sep/22/2008 11:34 AM

LEGEND

DUCTWORK

- SUPPLY ARROW
- RETURN/EXHAUST ARROW
- SUPPLY UP
- SUPPLY DOWN
- RETURN/EXHAUST UP
- RETURN/EXHAUST DOWN
- ROUND UP
- ROUND DOWN
- VOLUME DAMPER (VD)
- HORIZONTAL FIRE DAMPER
- VERTICAL FIRE DAMPER
- SUPPLY ARROWS INDICATE DIFFUSION PATTERN
- SQUARE DIFFUSER WITH ROUND INLET
  - PD3 — DIFFUSER MARK NUMBER
  - 335/120 — MINIMUM CFM / MAXIMUM CFM
- RETURN/EXHAUST AIR GRILLE OR REGISTER
  - E1 — AIR GRILLE MARK NUMBER
  - 150 — CFM
- 90° MITERED ELBOW WITH TURNING VANES
- ELBOW (r=w)
- TRANSITION FROM SQ. (OR RECT.) TO ROUND (OR FLAT OVAL)
- ACCESS DOOR (AD)
- DUCT CAP

STANDARD KEY

- X / X — MOTORIZED EQUIPMENT EQUIPMENT NUMBER
- XXX / X — NON-MOTORIZED EQUIPMENT EQUIPMENT NUMBER

MISCELLANEOUS

- NEW WORK, EQUIPMENT (SHOWN DARK)
- NEW WORK, DUCT AND PIPING (SHOWN DARK)
- NEW WORK, HIDDEN (AS SHOWN)
- NEW WORK BY OTHERS (SHOWN LIGHT)
- EXISTING WORK (SHOWN SCREENED)
- PRESSURE GAGE
- THERMOMETER

ABBREVIATIONS

A/C	AIR CONDITIONING
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOS	BOTTOM OF STEEL
BTUH	BRITISH THERMAL UNIT PER HOURS
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
CONN	CONNECTION
CONT	CONTINUATION
DB	DRY BULB
DEG	DEGREES
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EAD	EXHAUST AIR DUCT
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
ESP	EXTERNAL STATIC PRESSURE DROP
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
FAD	FRESH AIR DUCT
FAI	FRESH AIR INTAKE
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FT	FEET/FOOT
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
HC	HEATING COIL
HGT	HEIGHT
HOA	HAND-OFF-AUTO
HORIZ	HORIZONTAL
HP	HORSEPOWER
IN	INCHES
IN.WG.	INCHES WATER GAGE
L	LONG
LWT	LEAVING WATER TEMPERATURE
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LRA	LOCKED ROTOR AMPS
MAV	MANUAL AIR VENT
MBH	THOUSAND BRITISH TERMINAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTURER
MIN	MINIMUM
MAX	MAXIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MOD	MOTOR OPERATOR DAMPER
MTR	MOTOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
NTS	NOT TO SCALE
OBD	OPPOSED BLADE DAMPER
P	PUMP
PCT	PERCENT
PD	PRESSURE DROP
PLBG	PLUMBING
PSIG	POUNDS PER SQUARE INCH GAUGE
QTY	QUANTITY
RAD	RETURN AIR DUCT
RDU	REFRIGERATION DEHUMIDIFICATION UNIT
RL	REFRIGERANT LIQUID
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
SAD	SUPPLY AIR DUCT
SF	SUPPLY FAN, SQUARE FEET
SENS	SENSIBLE
SQ	SQUARE
SR	SUPPLY REGISTER
SST	STAINLESS STEEL
STL	STEEL
SW	SERVICE WATER
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
UH	UNIT HEATER
VERT	VERTICAL
VD	VOLUME DAMPER
W	WATTS, WIDE
WB	WET BULB
WMS	WIRE MESH SCREEN
WPD	WATER PRESSURE DROP
W/O	WITHOUT

GENERAL NOTES

1. THE DRAWINGS ARE DIAGRAMMATIC ONLY TO SHOW THE SCOPE OF THE WORK INVOLVED. ANY WORK INSTALLED CONTRARY TO OR WITHOUT APPROVAL SHALL BE SUBJECT TO CHANGE. NO EXTRA COMPENSATION WILL BE ALLOWED. DO NOT SCALE DRAWINGS FOR FABRICATION PURPOSES.
2. PERFORM ALL WORK IN STRICT ACCORDANCE WITH LAWS, REGULATIONS, AND STANDARDS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND INSURANCE REQUIREMENTS.
3. GIVE ALL NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACKCHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION AS REQUIRED TO PERFORM WORK.
4. COOPERATE AND COORDINATE WITH OTHER TRADES IN EXECUTING THE WORK. PERFORM WORK SO THAT PROGRESS OF ENTIRE PROJECT SHALL NOT BE DELAYED. PROVIDE INFORMATION TO OTHER TRADES, AS REQUESTED. OBTAIN FINAL ROUGHING DIMENSIONS AS REQUIRED TO COMPLETE WORK.
5. PERFORM WORK REQUIRED SO AS TO PROVIDE PROPER ACCESS TO MATERIAL AND EQUIPMENT REQUIRING INSPECTION, MAINTENANCE OR SERVICE.
6. DUCTWORK, PIPING AND EQUIPMENT LAYOUT SHOWN IS DIAGRAMMATIC, LOCATION SHALL BE DETERMINED IN FIELD.
7. SUBMIT SHOP DRAWINGS AND PRODUCT INFORMATION. NO WORK SHALL PROCEED WITHOUT WRITTEN APPROVAL ON EACH ITEM SCHEDULED, SPECIFIED OR SHOWN ON PLAN.
8. SUBMIT (2) COPIES OF A CERTIFIED AIR AND WATER BALANCING REPORT, PREPARED BY AN INDEPENDENT TESTING, ADJUSTING AND BALANCING AGENCY, NOT THE CONTRACTOR.
9. ALL EQUIPMENT SHALL BE AS SHOWN ON EQUIPMENT SCHEDULES.

HVAC NOTES

1. DUCTWORK AND ACCESSORIES
   - A. DUCTWORK SHALL FOLLOW THE GENERAL ROUTING INDICATED ON THE DRAWINGS. COORDINATE LOCATION WITH PIPING AND EQUIPMENT.
   - B. DUCTWORK SHALL BE FREE FROM VIBRATION. MAKE AND SEAL DUCT JOINTS AS SPECIFIED.
   - C. ALL RECTANGULAR DUCT ELBOWS SHALL HAVE TURNING VANES.
   - D. PROVIDE SEISMIC RESTRAINTS FOR DUCTWORK AND EQUIPMENT WHERE REQUIRED BY THE BUILDING CODE.
   - E. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOUVER LOCATIONS.
2. INSULATION
   - A. INSULATE ALL EXHAUST AIR DUCTWORK BETWEEN THE OUTDOOR DISCHARGE AND CONTROL DAMPER. INSULATE ALL PLENUMS.
3. ELECTRICAL ENCLOSURES
   - A. ALL ENCLOSURES SHALL BE NEMA TYPE 1 UNLESS OTHERWISE INDICATED. "ENCLOSURES" SHALL MEAN ELECTRICAL EQUIPMENT ENCLOSURES AND ASSOCIATED CONDUIT.

EARTH TECH AS-BUILT FILE MAY 2008

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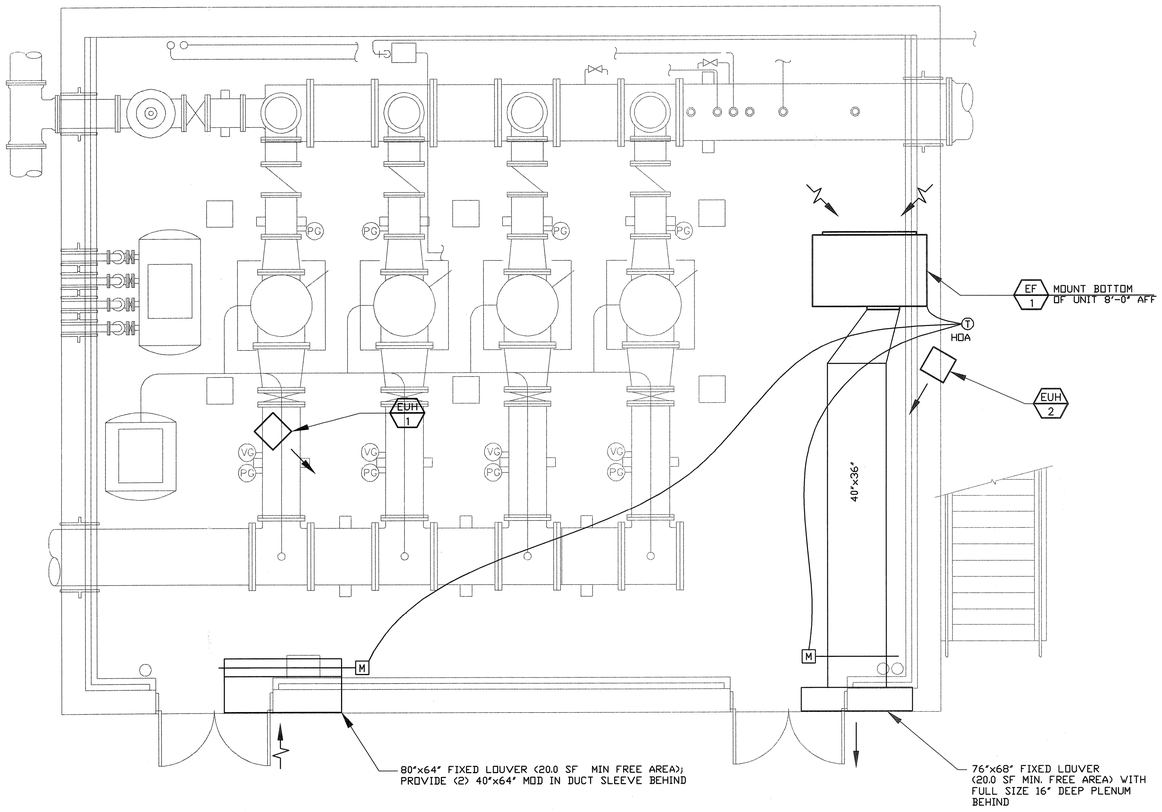
ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND 11/7/05

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
HVAC LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

DESIGNED BY CVA	DWG SCALE AS NOTED
DRAWN BY CVA	CONTRACT NO
CHECKED BY AG	DATE OCTOBER 31, 2005

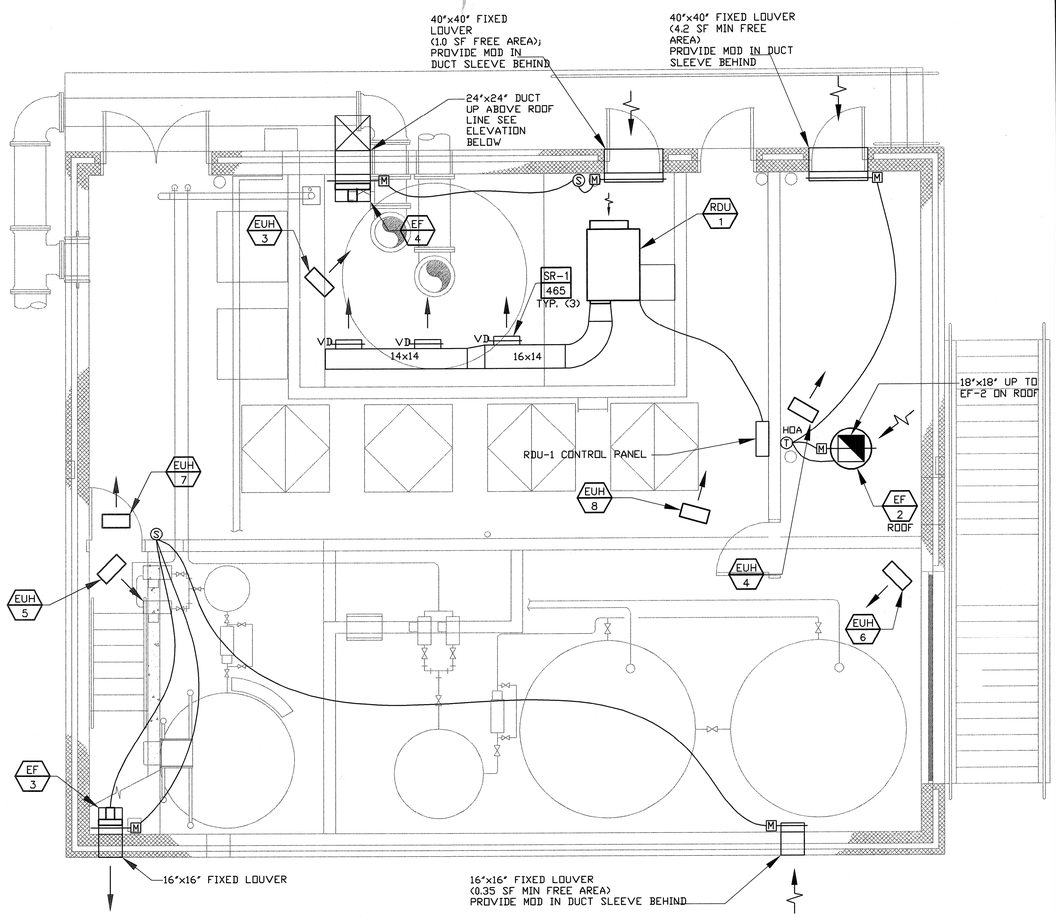
H-1
SHEET OF

PLOT TIME LAYOUT MODEL 10/31/2005 11:04 AM



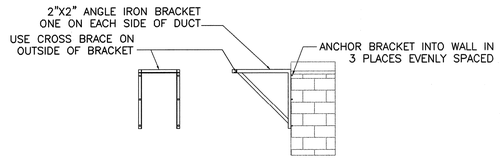
PUMP LEVEL FLOOR PLAN – EL. 59.00'

SCALE: 1/4" = 1'–0"



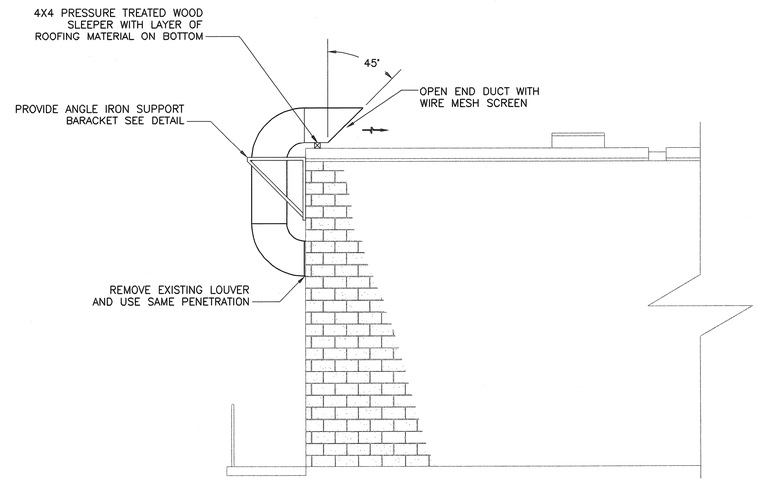
GROUND LEVEL FLOOR PLAN – EL. 79.00'

SCALE: 1/4" = 1'–0"



STRIPPER ROOM EXHUAST SUPPORT DETAIL

SCALE: 1/4" = 1'–0"



STRIPPER ROOM EXHAUST ELEVATION

SCALE: 1/4" = 1'–0"

EARTH TECH AS-BUILT FILE MAY 2008

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ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 2/7/09

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
DUCTWORK PLANS

DESIGNED BY CVA	DWG SCALE AS NOTED
DRAWN BY CVA	CONTRACT NO
CHECKED BY AC	DATE OCTOBER 31, 2006

H–2

SHEET OF

PKGS FIRE LOUVER LAYOUTS.DWG 2/7/2009 11:04 PM

REFRIGERATION DEHUMIDIFIER UNIT (RDU)

TAG NO.	MANUFACTURER MODEL NO. OR EQUAL	AREA SERVED	MTG. HT. (FT.) *	CFM	RATED CAPACITY ROOM CONDITIONS (DB / RH)	DEHUMIDIFICATION CAPACITY (LB/HR)	TOTAL COOLING CAPACITY (MBH)	SENSIBLE COOLING CAPACITY (MBH)	BLOWER		COMPRESSOR		ELECTRICAL DATA					REMARKS
									HP (0.5" ESP)	FLA	NOMINAL TONNAGE	RLA/LRA	KW	MCA/MOCP	VOLTS	PHASE	HERTZ	
RDU-1	DESERT AIRE IH-300	202 - STRIPPER ROOM	10'-0"	1400	82 °F DB / 60% RH	18	41	22	0.5	1.1	3	6.4/44	3.5	11/15	460	3	60	(1)(2)(3)

* MOUNTING HEIGHT IS TO BOTTOM OF UNIT FROM FINISHED FLOOR

(1) FIELD-INSTALLED CA2300 CONTROLLER PACKAGE

(2) ELECTROFIN E-COATING COIL FOR CORROSIVE ENVIRONMENTS

(3) ELECTRICAL DISCONNECT

FAN SCHEDULE (EF)

TAG NO.	MANUFACTURER MODEL NO. OR EQUAL	AREA SERVED	TYPE	DRIVE	CFM	ESP (IN. WG.)	MOTOR DATA				REMARKS
							HP	VOLT	PHASE	RPM	
EF-1	CARRIER 39LG-25	101 - PUMP ROOM	CENTRIFUGAL ENCLOSED	BELT	14,000	0.5	7 1/2	460	3	1725/850	(3)(4)
EF-2	PENN VENT #DX14B	203 - ELECTRICAL ROOM	ROOF-MOUNTED CENTRIFUGAL	BELT	2000	0.13	1/3	115	1	815	(1)(5)(6)(7)
EF-3	PENN VENT #P10VA	204 - CAUSTIC ROOM / 205 - POTASSIUM PERMANGANATE	PROPELLER WALL EXHAUST	DIRECT	192	0.13	1/30	115	1	842	(1)(2)(8)
EF-4	PENN VENT #P10VA	202 - STRIPPER ROOM	PROPELLER WALL EXHAUST	DIRECT	430	0.13	1/30	115	1	1026	(1)(2)(8)

(1) MOTOR OPERATED DAMPER

(2) WALL HOUSING WITH GUARD

(3) 1/2"x 1/2" ALUMINUM WELDED WIRE MESH INLET SCREEN

(4) DOUBLE WINDING, 2-SPEED TEFC MOTOR

(5) 12" HIGH PREFABRICATED ROOF CURB

(6) DISCONNECT SWITCH

(7) TEFC MOTOR

(8) LEK-TROL ELECTRONIC SPEED CONTROLLER

ELECTRIC UNIT HEATER SCHEDULE (EUH)

TAG NO.	MANUFACTURER MODEL NO. OR EQUAL	AREA SERVED	CFM	MTG. HT. (FT.) *	ELECTRICAL DATA					REMARKS
					KW	STAGES	AMPS	VOLTS	PHASE	
EUH-1	BERKO HUHAA748	101 - PUMP ROOM	650	7'-0"	7.5	2	9	460	3	(2)(3)
EUH-2	BERKO HUHAA748	101 - PUMP ROOM	650	7'-0"	7.5	2	9	460	3	(2)(3)
EUH-3	RUFFNECK MOD #CRI-480360-100	202 - STRIPPER ROOM	-	7'-0"	10	2	13	460	3	(2)(3)(4)
EUH-4	BERKO HUHAA348	203 - ELECTRICAL ROOM	350	7'-0"	3	1	3.6	460	3	(1)(3)
EUH-5	BERKO HUHAA348	204 - CAUSTIC ROOM / 205 - POTASSIUM PERMANGANATE	350	7'-0"	3	1	3.6	460	3	(1)(3)
EUH-6	BERKO HUHAA348	204 - CAUSTIC ROOM / 205 - POTASSIUM PERMANGANATE	350	7'-0"	3	1	3.6	460	3	(1)(3)
EUH-7	BERKO HUHAA348	201 - CORRIDOR	350	7'-0"	3	1	3.6	460	3	(1)(3)
EUH-8	BERKO HUHAA348	201 - CORRIDOR	350	7'-0"	3	1	3.6	460	3	(1)(3)

* MOUNTING HEIGHT IS TO BOTTOM OF UNIT FROM FINISHED FLOOR

(1) SINGLE STAGE INTERNAL THERMOSTAT

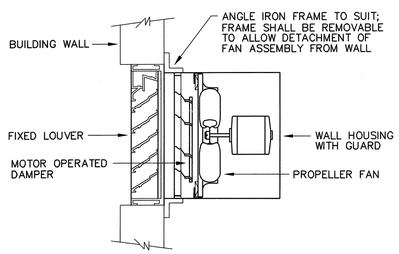
(2) TWO STAGE INTERNAL THERMOSTAT

(3) MOUNTING KIT

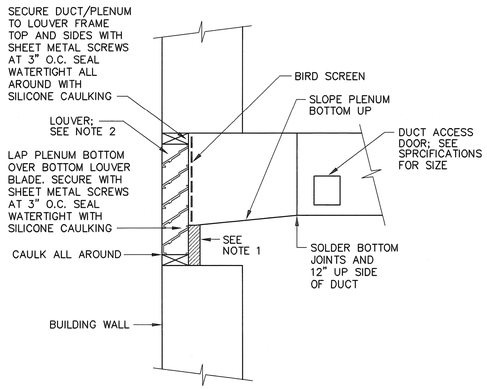
(4) STAINLESS STEEL ENCLOSURE

DIFFUSER AND REGISTER SCHEDULE (SR-CFM)

TAG NO.	MANUFACTURER AND MODEL NO.	NECK SIZE	CFM	FUNCTION	TYPE	REMARKS
SR-1	METAL-AIRE H4004(S)	18x10	465	SUPPLY	REGISTER	



WALL MOUNTED
PROPELLER EXHAUST FAN DETAIL
NOT TO SCALE



NOTES:

1. BLOCK UNUSED PORTION OF LOUVER WITH 2" THICK INSULATED METAL PANEL.
2. LOUVERS BY GENERAL CONTRACTOR; SEE ARCHITECTURAL PLANS.

LOUVER/PLENUM CONNECTION DETAIL
NOT TO SCALE

HVAC CONTROL NOTES:

1. ELECTRIC UNIT HEATERS AND DEHUMIDIFIERS HAVE INTEGRAL CONTROLS AND ARE NOT PART OF THE AUTOMATIC CONTROLS WORK EXCEPT MOUNTING AND WIRING OF DEHUMIDIFIER FACTORY-FURNISHED, FIELD-INSTALLED CONTROL PANEL.
2. PROVIDE ALL WIRING AND COMPONENTS SHOWN AND NOT SHOWN TO ACCOMPLISH THE SPECIFIED CONTROL SEQUENCES.
3. ALL CONTROL DAMPERS SHALL BE 2-POSITION SPRING RETURN WIRED FOR POWER OPEN/FAIL CLOSE. SPRING RETURN SHALL BE UTILIZED FOR FAIL MODE.
4. WALL-MOUNT ALL THERMOSTATS, CONTROL PANELS, AND MANUAL SWITCHES 5'-0" AFF TO CENTERLINE.
5. PROVIDE INSULATED BACKING ON ALL THERMOSTATS MOUNTED ON EXTERIOR WALLS.
6. PROVIDE FAN "ON/OFF/AUTO" SUB-BASE ON EACH EXHAUST FAN THERMOSTAT.
7. ELECTRICAL ENCLOSURES: ALL ENCLOSURES SHALL BE NEMA TYPE 1 UNLESS OTHERWISE INDICATED. "ENCLOSURES" SHALL MEAN ELECTRICAL EQUIPMENT ENCLOSURES AND ASSOCIATED CONDUIT.

HVAC CONTROL SEQUENCES

A. PUMP ROOM - VENTILATION (EF-1)

1. WHEN THE ON/OFF/AUTO SUB-BASE IS SET TO "AUTO", UPON A RISE IN SPACE TEMPERATURE ABOVE 90 DEGREES F (ADJUSTABLE) AS SENSED BY THE FIRST STAGE OF A 2-POSITION 2-STAGE REVERSE ACTING THERMOSTAT, BOTH THE 2-POSITION OUTDOOR AIR MOTOR-OPERATED DAMPERS AND THE 2-POSITION EXHAUST AIR MOTOR-OPERATED DAMPER SHALL OPEN, AFTER WHICH THE 2-SPEED EXHAUST FAN SHALL START AND RUN AT LOW SPEED.

   UPON A FURTHER RISE IN SPACE TEMPERATURE ABOVE 94 DEGREES F (ADJUSTABLE) AS SENSED BY THE SECOND STAGE OF THE 2-POSITION 2-STAGE REVERSE ACTING THERMOSTAT, THE 2-SPEED EXHAUST FAN SHALL GO TO HIGH SPEED. UPON A DROP BELOW SET POINTS, THE REVERSE SHALL OCCUR.
2. WHEN THE ON/OFF/AUTO SUB-BASE IS SET TO "OFF", THE WALL-MOUNTED EXHAUST FAN SHALL STOP, AFTER WHICH BOTH THE 2-POSITION OUTDOOR AIR MOTOR-OPERATED DAMPERS AND THE 2-POSITION EXHAUST AIR MOTOR-OPERATED DAMPER SHALL CLOSE.
3. WHEN THE ON/OFF/AUTO SUB-BASE IS SET TO "ON", BOTH THE 2-POSITION OUTDOOR AIR MOTOR-OPERATED DAMPERS AND THE 2-POSITION EXHAUST AIR MOTOR-OPERATED DAMPER SHALL OPEN, AFTER WHICH THE 2-SPEED EXHAUST FAN SHALL START AND RUN AT HIGH SPEED.

B. ELECTRICAL ROOM - VENTILATION (EF-2)

1. WHEN THE ON/OFF/AUTO SUB-BASE IS SET TO "AUTO", UPON A RISE ABOVE SPACE TEMPERATURE SETPOINT (90 DEGREES F ADJUSTABLE) AS SENSED BY A 2-POSITION REVERSE ACTING THERMOSTAT AS SHOWN ON THE DRAWINGS, BOTH THE 2-POSITION OUTDOOR AIR MOTOR-OPERATED DAMPER AND THE 2-POSITION EXHAUST AIR MOTOR-OPERATED DAMPER SHALL OPEN, AFTER WHICH THE WALL-MOUNTED EXHAUST FAN SHALL START. UPON A DROP BELOW SETPOINT, THE REVERSE SHALL OCCUR.
2. WHEN THE ON/OFF/AUTO SUB-BASE IS SET TO "OFF", THE WALL-MOUNTED EXHAUST FAN SHALL STOP, AFTER WHICH BOTH THE 2-POSITION OUTDOOR AIR MOTOR-OPERATED DAMPER AND THE 2-POSITION EXHAUST AIR MOTOR-OPERATED DAMPER SHALL CLOSE.
3. WHEN THE ON/OFF/AUTO SUB-BASE IS SET TO "ON", BOTH THE 2-POSITION OUTDOOR AIR MOTOR-OPERATED DAMPER AND THE 2-POSITION EXHAUST AIR MOTOR-OPERATED DAMPER SHALL OPEN, AFTER WHICH THE WALL-MOUNTED EXHAUST FAN SHALL START.

C. STRIPPER ROOM - VENTILATION (EF-4)
CAUSTIC ROOM / POTASSIUM PERMANGANATE ROOMS (EF-3)

1. EACH FAN SHALL BE CONTROLLED BY A SWITCH AS SHOWN ON THE DRAWINGS. SWITCH AND DAMPER MOTORS LOCATED IN STRIP ROOM SHALL HAVE NEMA 4X ENCLOSURES.
2. WHEN FAN IS "ON", BOTH THE 2-POSITION OUTDOOR AIR MOTOR-OPERATED DAMPERS AND THE 2-POSITION EXHAUST AIR MOTOR-OPERATED DAMPER SHALL OPEN, AFTER WHICH THE WALL-MOUNTED EXHAUST FAN SHALL START. WHEN FAN IS "OFF", THE REVERSE SHALL OCCUR.

LEGEND

(T)	THERMOSTAT
(S)	MANUAL SWITCH
M	MOTOR OPERATED DAMPER (MOD)
HOA	HAND-OFF AUTO THERMOSTAT (SUB-BASE)

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 200 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	BY	DATE	REVISIONS
2	DPB	MAY 2008	AS-BUILT DRAWING FILE
1	AAH	10/31/05	ISSUED FOR RFI POSTED SET
0	AJS	10/28/05	ISSUED FOR CONSTRUCTION
B	AJS	8/16/05	ISSUED FOR AGENCY REVIEW
A	AJS	7/22/05	ISSUED FOR AGENCY REVIEW

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 31/05

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
HVAC SCHEDULES, DETAILS, CONTROL SEQUENCES, AND NOTES

DESIGNED BY AG	DWG SCALE AS NOTED
DRAWN BY CA	CONTRACT NO
CHECKED BY	DATE OCTOBER 31, 2005

H-3

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FILE: File Name Variable 05/22/2008 11:34 AM

PLUMBING LEGEND

- PLUG VALVE
- BALL VALVE
- CHECK VALVE
- GATE VALVE
- PRESSURE REDUCING VALVE
- PIPE REDUCER
- SAFETY RELIEF VALVE
- PIPE DOWN
- PIPE UP
- STRAINER
- UNION
- WATER HAMMER ARRESTOR
- WATER METER ASSEMBLY
- VALVE IN RISER
- PIPE CAP

MISCELLANEOUS

- NEW WORK, EQUIPMENT (SHOWN DARK)
- NEW WORK PIPING (SHOWN DARK)
- NEW WORK, HIDDEN (AS SHOWN)
- NEW WORK BY OTHERS (SHOWN LIGHT)
- EXISTING WORK (SHOWN SCREENED)
- PRESSURE GAGE
- THERMOMETER

PIPELINE DESIGNATIONS

- BURIED VENT PIPING
- BURIED PIPING EXCEPT VENT PIPING
- COLD WATER
- HOT WATER
- TEMPERED WATER
- SANITARY VENT
- SAN — SANITARY ABOVE GROUND

STANDARD KEY

- X / X — MOTORIZED EQUIPMENT EQUIPMENT NUMBER
- XXX / X — NON-MOTORIZED EQUIPMENT EQUIPMENT NUMBER

PLUMBING ABBREVIATIONS

AFF AFG	ABOVE FINISHED FLOOR ABOVE FINISHED GRADE
CO	CLEANOUT
CONN	CONNECTION
CW	COLD WATER
D	DRAIN
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GAL	GALLONS
GPH	GALLONS PER HOUR
HP	HORSEPOWER
HW	HOT WATER
HWR	HOT WATER RETURN
ID	INDIRECT WASTE, INSIDE DIMENSIONS
IN. WG.	INCHES WATER GAGE
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MIN	MINIMUM
NP	NON-POTABLE
OD	OUTSIDE DIMENSIONS
PSIG	POUNDS PER SQUARE INCH GAUGE
RD	ROOF DRAIN
RL	RAIN LEADER
RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
S	SOIL
SAN	SANITARY
SPD	SUMP PUMP DISCHARGE
ST	STORM
TW	TEMPERED WATER
V	VENT
VTR	VENT THROUGH ROOF
W	WASTE
WHA	WATER HAMMER ARRESTOR

GENERAL NOTES

1. THE DRAWINGS ARE DIAGRAMMATIC ONLY TO SHOW THE SCOPE OF THE WORK INVOLVED. ANY WORK INSTALLED CONTRARY TO OR WITHOUT APPROVAL SHALL BE SUBJECT TO CHANGE. NO EXTRA COMPENSATION WILL BE ALLOWED. DO NOT SCALE DRAWINGS FOR FABRICATION PURPOSES.
2. PERFORM ALL WORK IN STRICT ACCORDANCE WITH LAWS, REGULATIONS, AND STANDARDS OF LOCAL, STATE AND FEDERAL GOVERNMENTS.
3. GIVE ALL NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION AS REQUIRED TO PERFORM WORK.
4. COOPERATE AND COORDINATE WITH OTHER TRADES IN EXECUTING THE WORK. PERFORM WORK SO THAT PROGRESS OF ENTIRE PROJECT SHALL NOT BE DELAYED. PROVIDE INFORMATION TO OTHER TRADES, AS REQUESTED. OBTAIN FINAL ROUGHING DIMENSIONS AS REQUIRED TO COMPLETE WORK.
5. PERFORM WORK REQUIRED SO AS TO PROVIDE PROPER ACCESS TO MATERIAL AND EQUIPMENT REQUIRING INSPECTION, MAINTENANCE OR SERVICE.
6. PIPING AND EQUIPMENT LAYOUT SHOWN IS DIAGRAMMATIC, LOCATION SHALL BE DETERMINED IN FIELD.
7. SUBMIT SHOP DRAWINGS AND PRODUCT INFORMATION. NO WORK SHALL PROCEED WITHOUT WRITTEN APPROVAL ON EACH ITEM SCHEDULED, SPECIFIED OR SHOWN ON PLAN.
8. ALL EQUIPMENT SHALL BE AS SHOWN ON EQUIPMENT SCHEDULES.

PLUMBING NOTES

1. PIPING AND ACCESSORIES
   - A. PIPING SHALL FOLLOW THE GENERAL ROUTING, INDICATED ON DRAWINGS. COORDINATE LOCATION WITH ALL OTHER PIPING, DUCTWORK, AND EQUIPMENT.
   - B. PROVIDE UNIONS IN CONNECTIONS TO EQUIPMENT REQUIRING REMOVAL FOR REPAIRS AND/OR REPLACEMENT. LOCATE BETWEEN SHUTOFF VALVES AND EQUIPMENT.
   - C. ALL SHUT-OFF VALVES AND WATER HAMMER ARRESTORS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.
   - D. PROVIDE PROPER DRAINAGE FOR ALL PIPING SYSTEMS.
   - E. PROVIDE SEISMIC RESTRAINTS FOR PIPING AND EQUIPMENT WHERE REQUIRED BY THE BUILDING CODE.
   - F. MAINTAIN MAXIMUM HEADROOM. UNLESS OTHERWISE INDICATED, RUN ALL PRESSURIZED OVERHEAD HORIZONTAL PIPING MAXIMUM 12" BELOW THE OVERHEAD BUILDING STRUCTURE. RUN ALL GRAVITY OVERHEAD HORIZONTAL PIPING AS TIGHT TO OVERHEAD BUILDING STRUCTURE AS POSSIBLE WHILE MAINTAINING REQUIRED PITCH. OVERHEAD BUILDING STRUCTURE SHALL MEAN THE MINIMUM ELEVATION OF UNDERSIDE OF STRUCTURAL BEAMS WHERE RUNNING PERPENDICULAR TO BEAMS, OR THE CEILING BELOW STRUCTURAL ELEMENTS IN ALL OTHER CASES. (EG. CONCRETE SLAB)
   - G. PROVIDE APPROVED FIRE STOP MATERIAL WHERE PIPING PENETRATES FIRE RATED WALLS.
   - H. INSTALL WATER HAMMER ARRESTORS (WHA) PER PDI REQUIREMENTS WHERE INDICATED ON DRAWINGS.
   - I. NO PORTION OF THE SANITARY DRAIN-WASTE-VENT SYSTEM INSTALLED UNDERGROUND SHALL BE LESS THAN TWO INCHES IN DIAMETER.
   - J. FLOOR DRAIN OUTLET PIPES SHALL BE THE SAME SIZE AS ATTACHED SERVICE.
   - K. SANITARY PLUMBING VENTS THROUGH ROOF SHALL BE TERMINATED MINIMUM 12 INCHES ABOVE ROOF.
   - L. RUN ALL BURIED PIPING BENEATH, NOT IN, CONCRETE FLOOR SLABS.
   - M. PROVIDE THERMOMETERS ON OUTLETS OF ALL MIXING VALVES.
2. INSULATION
   - A. INSULATE ALL DOMESTIC COLD WATER AND DOMESTIC HOT WATER PIPING. DO NOT INSULATE EMERGENCY SHOWER/EYE WASH TEMPERED WATER PIPING.
3. ELECTRICAL ENCLOSURES
   - A. ALL ENCLOSURES SHALL BE NEMA TYPE 1 UNLESS OTHERWISE INDICATED. "ENCLOSURES" SHALL MEAN ELECTRICAL EQUIPMENT ENCLOSURES AND ASSOCIATED CONDUIT.

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 280 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	BY	DATE	REVISIONS
2	DPB	MAY 2008	AS-BUILT DRAWING FILE
1	AAH	10/31/06	ISSUED FOR RFI POSTED SET
0	AJG	10/28/05	ISSUED FOR CONSTRUCTION
B	AJG	8/15/05	ISSUED FOR RFI RESPONSE REVIEW
A	AJG	7/22/05	ISSUED FOR RESPONSE REVIEW

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
PLUMBING LEGENDS, ABBREVIATIONS, AND GENERAL NOTES

DESIGNED BY CVA	DWG SCALE AS NOTED
DRAWN BY CVA	CONTRACT NO
CHECKED BY AG	DATE OCTOBER 31, 2006

P-1
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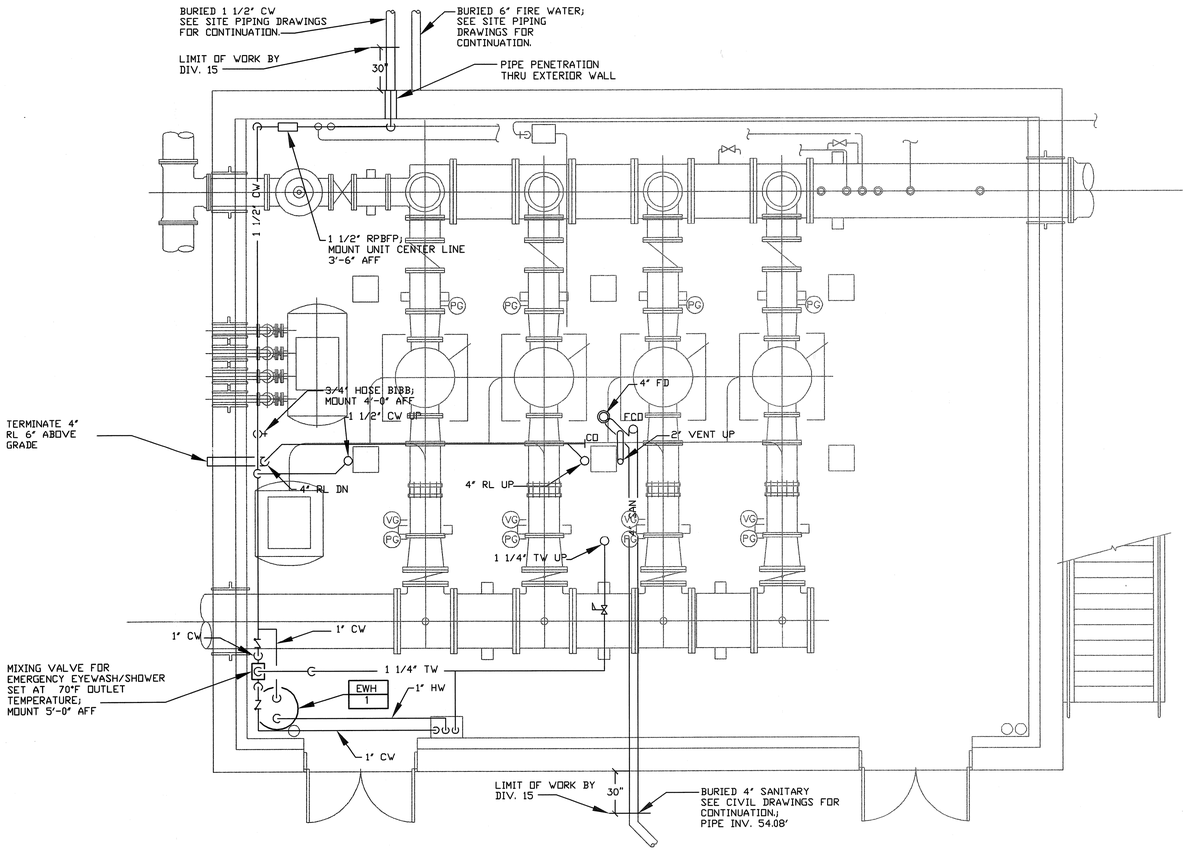
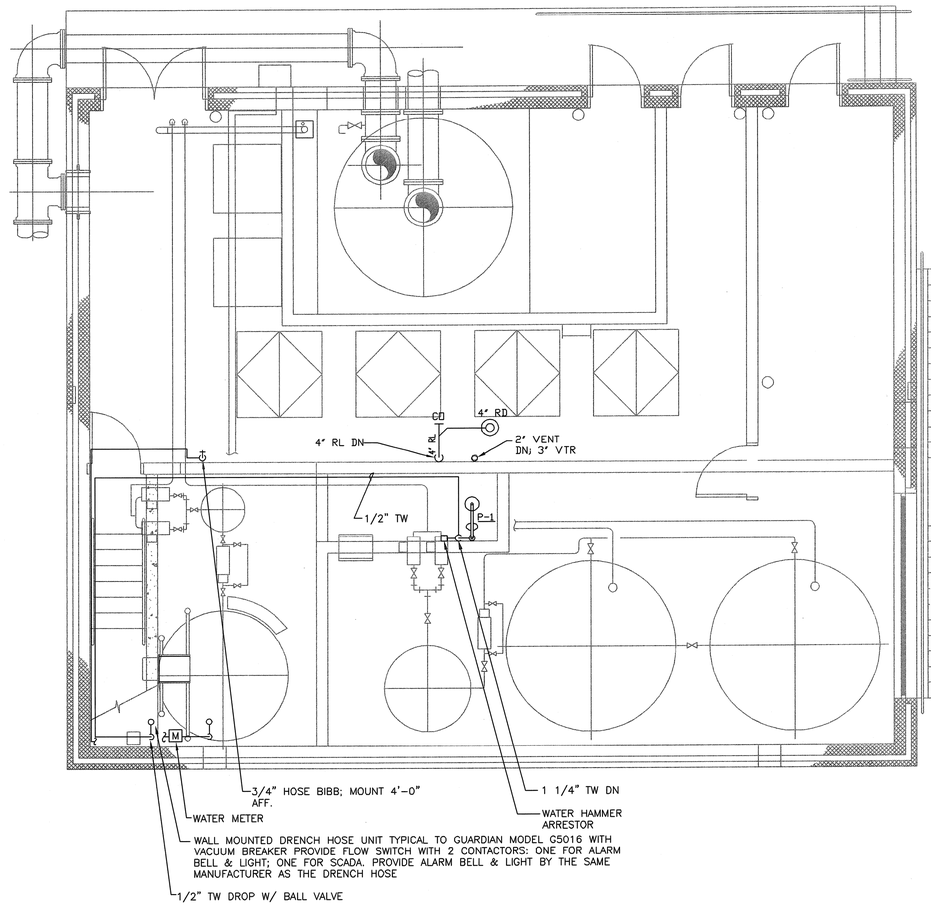


PUMP LEVEL FLOOR PLAN – EL. 59.00'

SCALE: 1/4" = 1'–0"



GROUND LEVEL FLOOR PLAN – EL. 79.00'

SCALE: 1/4" = 1'–0"

EARTH TECH
AS-BUILT FILE
MAY 2008

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FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET	AAH	10/31/06
0	ISSUED FOR CONSTRUCTION	AJG	10/28/05
G	ISSUED FOR 95% SUBMITTAL REVIEW	AJG	8/16/05
A	ISSUED FOR PRELIMINARY REVIEW	AJG	7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
PLUMBING PLANS

DESIGNED BY CVA	DWG SCALE AS NOTED
DRAWN BY CVA	CONTRACT NO
CHECKED BY AG	DATE OCTOBER 31, 2006

P–2

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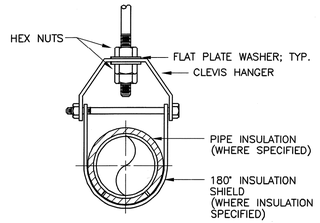
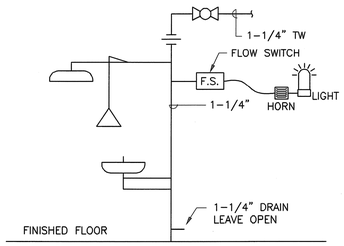


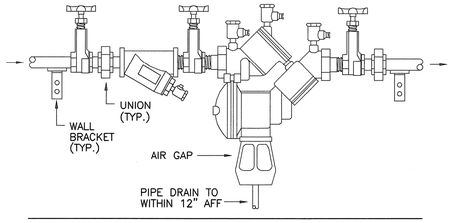
TYPICAL PIPE SUPPORT DETAIL

NOT TO SCALE



EMERGENCY EYEWASH/SHOWER PIPING DETAIL

NOT TO SCALE



REDUCED PRESSURE BACKFLOW PREVENTER DETAIL

NOT TO SCALE

ELECTRIC WATER HEATER SCHEDULE

EWH

TAG NO.	MANUFACTURER AND MODEL NO.	AREA SERVED	TANK STORAGE (GAL.)	HEATING ELEMENT				RECOVERY RATE (GPH) AT 100° F RISE	TEMP SETTING (° F)	REMARKS
				QTY	WATTS	VOLTS	PHASE			
EWH-1	RHEEM ELD120	RWPS – GROUND FLOOR	120	2	4500	460	3	18	140	(1) (2)

(1) NON-SIMULTANEOUS WIRING

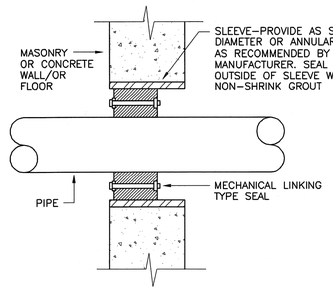
(2) HEAT TRAP FITTINGS

PLUMBING FIXTURE SCHEDULE

FIXTURE NO.	FIXTURE	MODEL	DRAIN/ WASTE	COLD WATER	HOT WATER	TEMPERED WATER	VENT	REMARKS
P-1	EMERGENCY EYEWASH/SHOWER	–	–	–	–	1 1/4"	–	(1) (2)

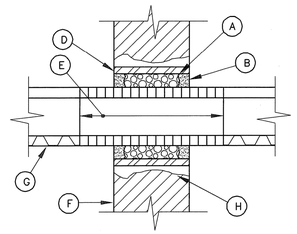
(1) 20 GPM CONTROL VALVE

(2) FLOW ALARM CONTROL PACKAGE



PIPE PENETRATION THROUGH EXTERIOR WALL DETAIL

NOT TO SCALE



PIPE PENETRATION THROUGH INTERIOR WALL/FLOOR DETAIL

NOT TO SCALE

(A) PROVIDE 1/4" CLEARANCE BETWEEN PIPE SLEEVE OR CORE DRILLED HOLE AND PIPE. PACK CLEARANCE SPACE WITH SPECIFIED INSULATION

(B) PROVIDE SPECIFIED END SEALANT

(C) NOT USED

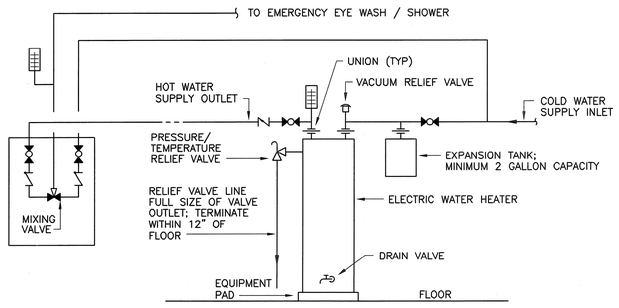
(D) SLEEVE–PROVIDE AS SPECIFIED. SLEEVE MAY BE OMITTED AND CORE DRILLED HOLE PROVIDED IN CONCRETE AS SPECIFIED. EXTEND FLOOR PIPE SLEEVES 2" ABOVE FLOOR.

(E) CALCIUM SILICATE OR APPROVED EQUAL INSULATION THRU PENETRATION AND EXTENDED 2" ON BOTH SIDES OF WALL OR FLOOR; PROVIDE METAL JACKET AS SPECIFIED OVER INSULATION

(F) WALL OR FLOOR

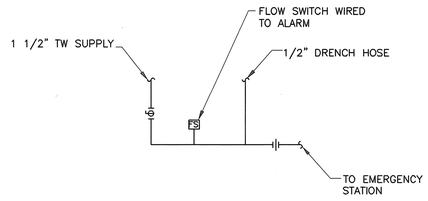
(G) SPECIFIED INSULATION

(H) GROUT SPACE BETWEEN SLEEVE AND MASONRY OR CONCRETE WALLS AND FLOORS



ELECTRIC WATER HEATER DETAIL

NOT TO SCALE



EMERGENCY STATION SCHEMATIC PIPING DETAIL

NOT TO SCALE

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
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300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET	AAH	10/31/06
0	ISSUED FOR CONSTRUCTION	AJG	10/28/05
B	ISSUED FOR 90% SUBMITTER REVIEW	AJG	8/16/05
A	ISSUED FOR CONSTRUCTION REVIEW	AJG	7/22/05

ROBERT H. SHELDON 4103 NEW JERSEY PROFESSIONAL ENGINEER 10/31/06

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
PLUMBING SCHEDULES AND DETAILS

DESIGNED BY CVA	DWG SCALE AS NOTED
DRAWN BY CVA	CONTRACT NO
CHECKED BY AG	DATE OCTOBER 31, 2006

P-3

SHEET OF

FIRE PROTECTION LEGEND

- BRANCH – BOTTOM CONNECTION
- BRANCH – TOP CONNECTION
- BURIED PIPE
- CAP OR PLUG
- FLANGE
- RISER DOWN
- RISER UP
- TEE
- UNION
- CHECK VAVLE
- NON–INDICATING VALVE
- OS&Y GATE VALVE
- OS&Y GATE VALVE WITH TAMPER SWITCH
- SIAMESE FIRE DEPARTMENT CONNECTION
- FLEXIBLE PIPE CONNECTOR
- PRESSURE GAUGE
- RISER
- PENDENT SPRINKLER
- SPRINKLER W/GUARD (UPRIGHT SPRINKLER SHOWN)
- UPRIGHT SPRINKLER
- ELECTRIC ALARM BELL
- PIPE SLOPED DOWN
- PRESSURE SWITCH
- WATER FLOW SWITCH

ABBREVIATIONS

ACV	ALARM CHECK VALVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATC	ACOUSTICAL TILE CEILING
℄	CENTER LINE
DCBFP	DOUBLE CHECK BACKFLOW PREVENTER
DN	DOWN
FACP	FIRE ALARM CONTROL PANEL
FDC	FIRE DEPARTMENT CONNECTION
FS	FLOW SWITCH
MIN	MINIMUM
PIV	POST INDICATING VALVE
SQ.FT.	SQUARE FEET
TYP.	TYPICAL

GENERAL NOTES

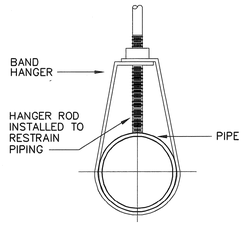
1. THE SPRINKLER CONTRACTOR SHALL PRODUCE A COMPLETE SET OF WORKING FIRE PROTECTION DRAWINGS IN ACCORDANCE WITH THE RHODE ISLAND FIRE SAFETY CODE AND NFPA 13. THE SYSTEM SHALL BE HYDRAULICALLY CALCULATED PER THE DESIGN CRITERIA PROVIDED AND REQUIRED. ALL DRAWINGS AND CALCULATIONS SHALL BE STAMPED AND SIGNED BY THE CONTRACTOR'S REGISTERED FIRE PROTECTION ENGINEER AND SHALL BE SUBMITTED TO THE LOCAL FIRE DEPARTMENT FOR APPROVAL AND PERMIT PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER WORK. PLANS AND HYDRAULIC CALCULATIONS AS DESCRIBED ABOVE SHALL ALSO BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO THE COMMENCEMENT OF ANY SPRINKLER WORK.
2. HAZARD OCCUPANCIES IN THIS STRUCTURE ARE NOT TO EXCEED THOSE INDICATED ON THE DRAWINGS. A FIRE PROTECTION AND HYDRAULIC ANALYSIS INDICATING THE ACCEPTABILITY OF THE FIRE PROTECTION SYSTEM(S), AND ASSOCIATED SYSTEMS TO ADEQUATELY SERVE THE PROPOSED HAZARD MUST BE CONDUCTED BY A LICENSED FIRE PROTECTION ENGINEER PRIOR TO OCCUPANCY CHANGES OF A GREATER HAZARD.
3. THE OWNER IS TO PROVIDE HEAT AS REQUIRED THROUGHOUT THE BUILDING TO PREVENT WATER IN THE SYSTEM FROM FREEZING. THE OWNER IS ALSO TO MAINTAIN THE SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE RHODE ISLAND FIRE SAFETY CODE.
4. THE DRAWINGS ARE NOT INTENDED TO SHOW SPRINKLER HEAD LOCATIONS, NUMBER OF SPRINKLER HEADS, OR THE ROUTING OF PIPING. THIS SHALL BE THE RESPONSIBILITY OF THE SPRINKLER CONTRACTOR. THE SPRINKLER CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS.
5. THE DESIGN AREAS AND DENSITIES INDICATED ON THE DRAWINGS ARE FOR REFERENCE ONLY. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL DESIGN AREAS AND DENSITIES IN STRICT ACCORDANCE WITH NFPA 13.
6. THE SPRINKLER CONTRACTOR SHALL PERFORM A HYDRANT FLOW TEST TO OBTAIN CURRENT FLOW AND PRESSURE DATA. THE SPRINKLER CONTRACTOR SHALL USE HIS OBTAINED FLOW AND PRESSURE DATA TO PERFORM HIS HYDRAULIC CALCULATIONS FOR THE SPRINKLER SYSTEM DESIGN. THE HYDRANT FLOW TEST SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 291. THE SPRINKLER CONTRACTOR SHALL PERFORM ALL COORDINATION WITH THE LOCAL WATER AUTHORITIES IN ORDER TO PERFORM THE HYDRANT FLOW TEST. THE SPRINKLER CONTRACTOR SHALL REVIEW THE SYSTEM REQUIREMENTS AND MAKE PROVISIONS FOR A FIRE PUMP IF REQUIRED.
7. MAINTAIN MAXIMUM HEADROOM FOR ALL NEW PIPING.
8. FLUSH ALL NEW SPRINKLER PIPING IN ACCORDANCE WITH FACTORY MUTUAL LOSS PREVENTION DATA SHEET 2–81, SPRINKLER SYSTEM MAINTENANCE, SECTION 9.5 USING THE HYDRAULIC METHOD. USE THE FIRE WATER SERVICE FOR THE SOURCE OF WATER. FLUSH BEFORE SPRINKLER HEADS ARE INSTALLED. FLUSH UNTIL WATER RUNS CLEAN. DISCHARGE USED WATER TO SANITARY SEWER.
9. PROVIDE FIRE WATCH AND ALL OTHER SAFEGUARDING IN ACCORDANCE WITH NFPA 241 AND OWNER PROCEDURES.
10. SPRINKLER HEADS SHALL BE UL LISTED AND FM APPROVED FOR THE INSTALLATION APPLICATION AND CONFIGURATION SPECIFIC TO THIS PROJECT AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. POSITION ALL NEW HEADS IN ACCORDANCE WITH NFPA 13, UL, FM AND THE MANUFACTURER'S INSTRUCTIONS. ALL HEADS SHALL BE OF THE SAME MANUFACTURER.
11. ENCLOSURE FOR ELECTRICAL COMPONENTS SHALL BE NEMA TYPE 1 SO LOCATED WHERE INDICATED ON THE DRAWINGS.

DESIGN CRITERIA

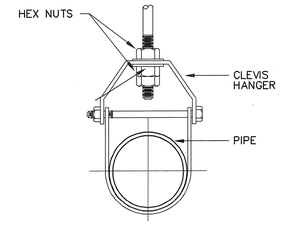
A. PROVIDE WET PIPE SPRINKLER SYSTEM THROUGHOUT BUILDING EXCEPT IN ELECTRICAL ROOM. ELECTRICAL ROOM SHALL NOT BE SPRINKLED.

B. PROVIDE HYDRAULIC CALCULATIONS AS SPECIFIED. HYDRAULIC CALCULATIONS SHALL INCORPORATE A MINIMUM 10 PSI CUSHION AT DESIGN CONDITIONS TO ALLOW FOR FUTURE DEGRADATION OF THE SYSTEMS.

C. HAZARD OCCUPANCIES:
0.14 GPM/SQ.FT. OVER MOST REMOTE 2000 SQ.FT.

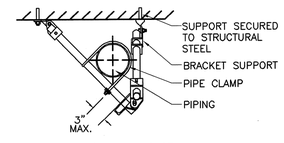


PIPING 2" AND SMALLER

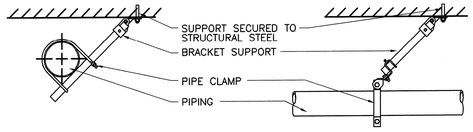


PIPING 2 1/2" AND LARGER

TYPICAL PIPE SUPPORT DETAILS
NOT TO SCALE



LONGITUDINAL/LATERAL BRACE

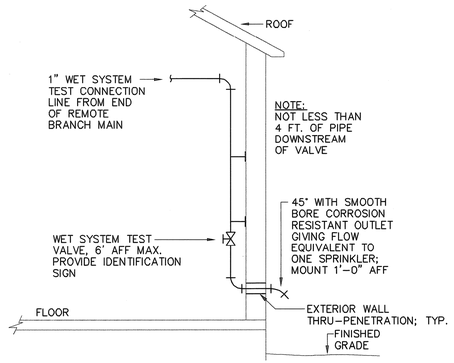


LATERAL (TRANSVERSE) BRACE

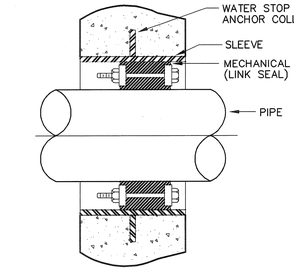
LONGITUDINAL BRACE

NOTE:
ALL PIPING SHALL BE SEISMICALLY BRACED AND INSTALLED PER NFPA 13–2002.

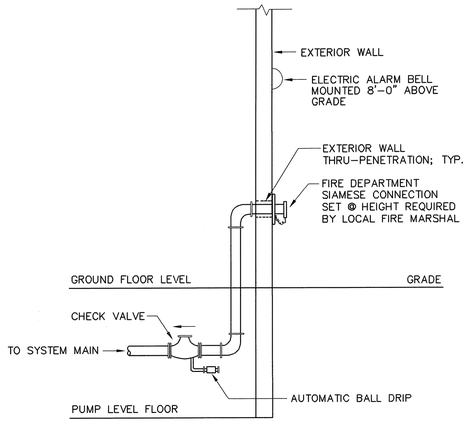
SEISMIC PIPE BRACING DETAILS
NOT TO SCALE



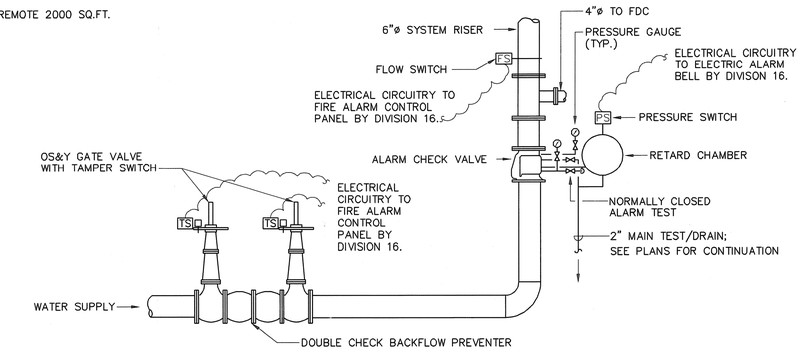
INSPECTOR'S TEST CONNECTION (WET PIPE) DETAIL
NOT TO SCALE



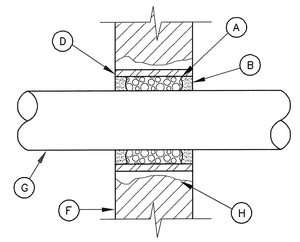
EXTERIOR WALL THRU–PENETRATION DETAIL
NOT TO SCALE



FIRE DEPARTMENT CONNECTION DETAIL
NOT TO SCALE



ALARM CHECK VALVE ASSEMBLY DETAIL
NOT TO SCALE



PIPE PENETRATION DETAIL
(NOT FOR WATER TIGHT CONSTRUCTION)
NOT TO SCALE

- (A) PROVIDE 1/4" CLEARANCE BETWEEN PIPE SLEEVE OR CORE DRILLED HOLE AND PIPE. PACK CLEARANCE SPACE WITH SPECIFIED INSULATION
- (B) PROVIDE SPECIFIED END SEALANT
- (C) (NOT USED)
- (D) SLEEVE–PROVIDE AS SPECIFIED. EXTEND FLOOR PIPE SLEEVES 2" ABOVE FLOOR.
- (E) (NOT USED)
- (F) WALL OR FLOOR
- (G) (NOT USED)
- (H) GROUT SPACE BETWEEN SLEEVE AND MASONRY OR CONCRETE WALLS AND FLOORS

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371–4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS–BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET	AAH	10/31/06
0	ISSUED FOR CONSTRUCTION	AJC	10/28/05
B	REV. B AGENCY REVIEW	AJC	8/16/05
A	REV. A CLIENT REVIEW	AJC	7/22/05

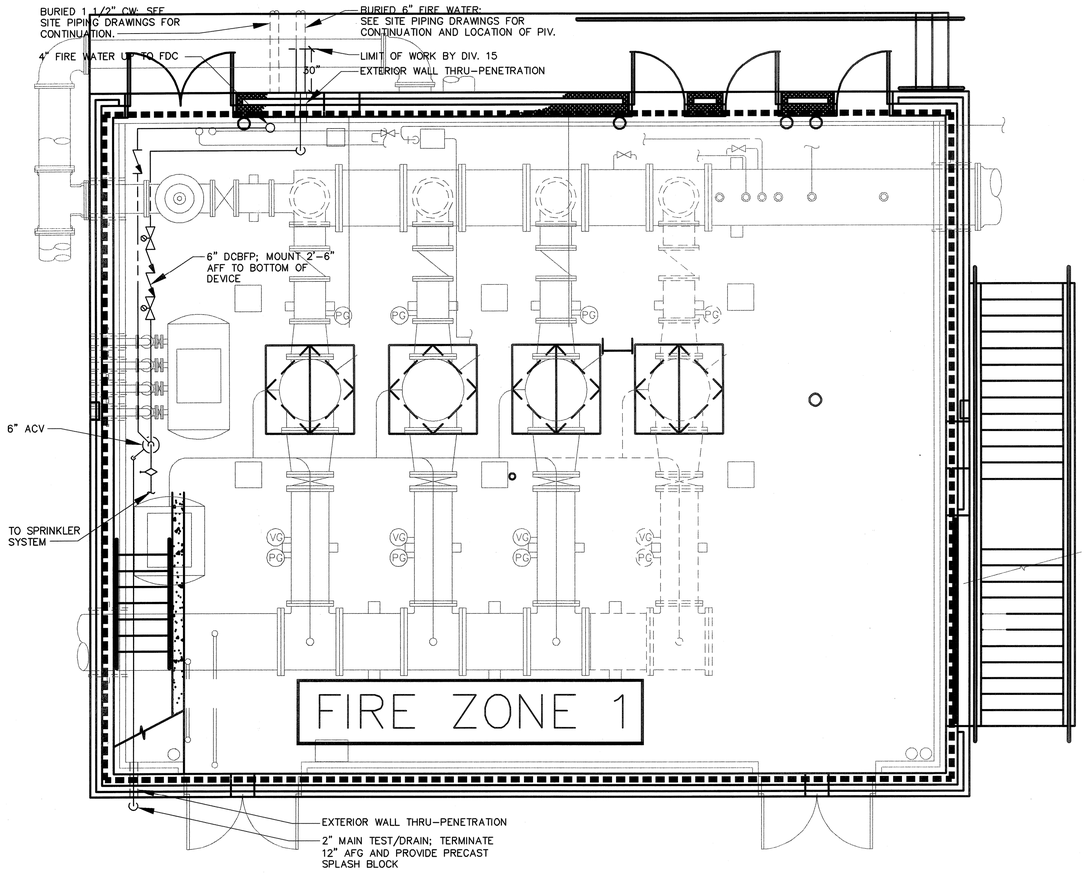
REGISTERED PROFESSIONAL ENGINEER ROBERT H. SHELDON 4103 2/7/06

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
FIRE PROTECTION LEGENDS, ABBREVIATIONS, GENERAL NOTES, DETAILS, AND DESIGN CRITERIA

DESIGNED BY CVA	DWG SCALE AS NOTED
DRAWN BY CVA	CONTRACT NO
CHECKED BY AG	DATE OCTOBER 31, 2006

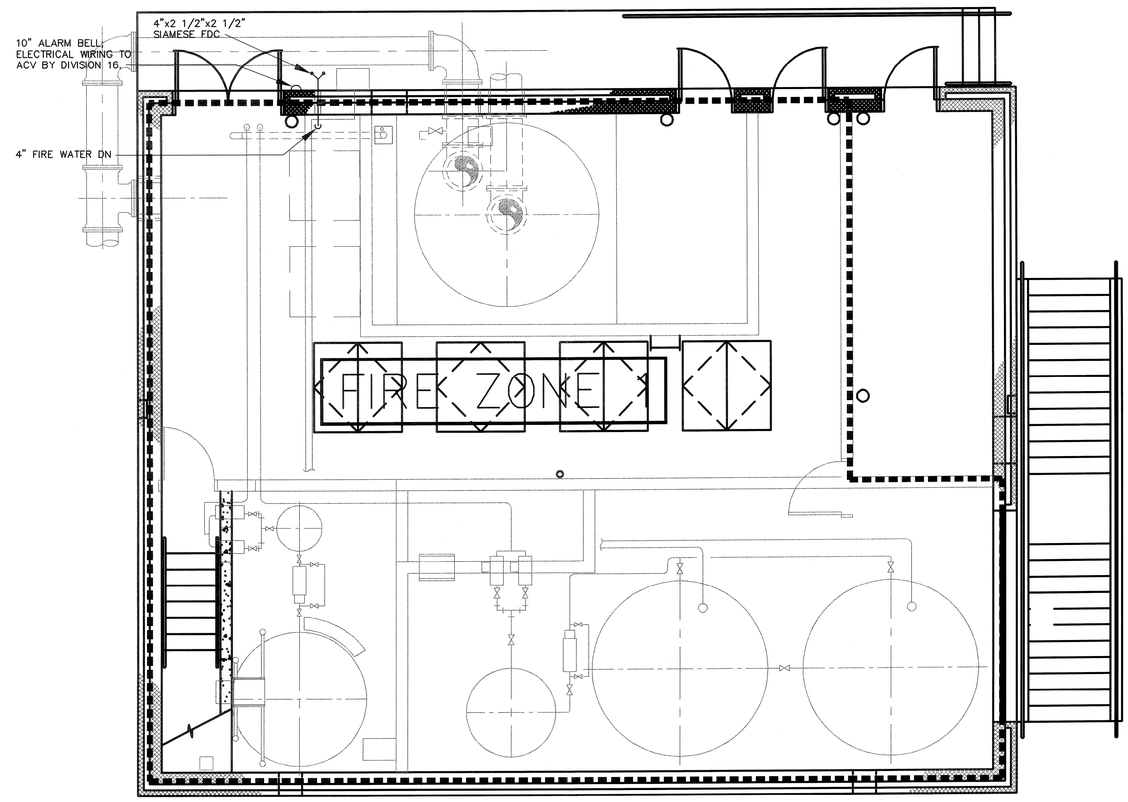
FP–1

SHEET OF



PUMP LEVEL FLOOR PLAN – EL. 59.00'

SCALE: 1/4" = 1'-0"



GROUND LEVEL FLOOR PLAN – EL. 79.00'

SCALE: 1/4" = 1'-0"

EARTH TECH AS-BUILT FILE MAY 2008

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 280 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET	AAH	10/31/06
0	ISSUED FOR CONSTRUCTION	AJG	10/28/05
B	ISSUED FOR RFI RESPONSE/SET REVIEW	AJG	8/16/05
A	ISSUED FOR 60% SUBMISSION REVIEW	AJG	7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND 5/2/08

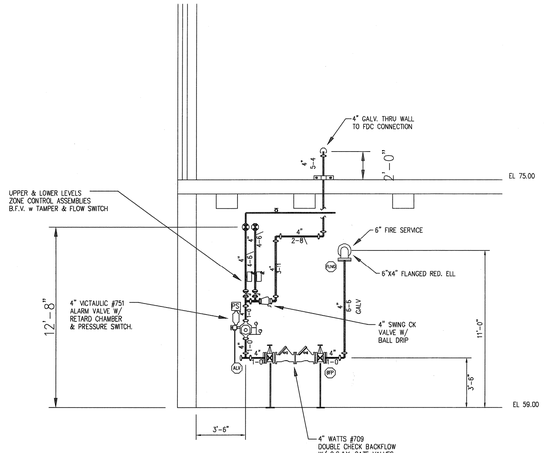
PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
FIRE PROTECTION PLANS

DESIGNED BY CVA	DWG SCALE AS NOTED
DRAWN BY CVA	CONTRACT NO
CHECKED BY AG	DATE OCTOBER 31, 2006

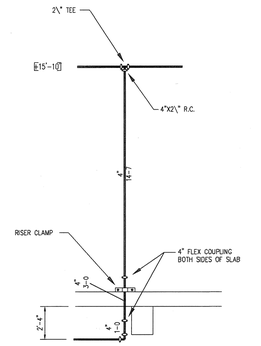
FP-2

SHEET OF

FULL FILE LOCATION & NAME: J:\PROJECTS\2005\27105\CAD\FP-2.DWG 11:04 AM



A FIRE SERVICE RISER DETAIL
1/4"=1'-0"



B UPPER FLR RISER DETAIL
1/4"=1'-0"

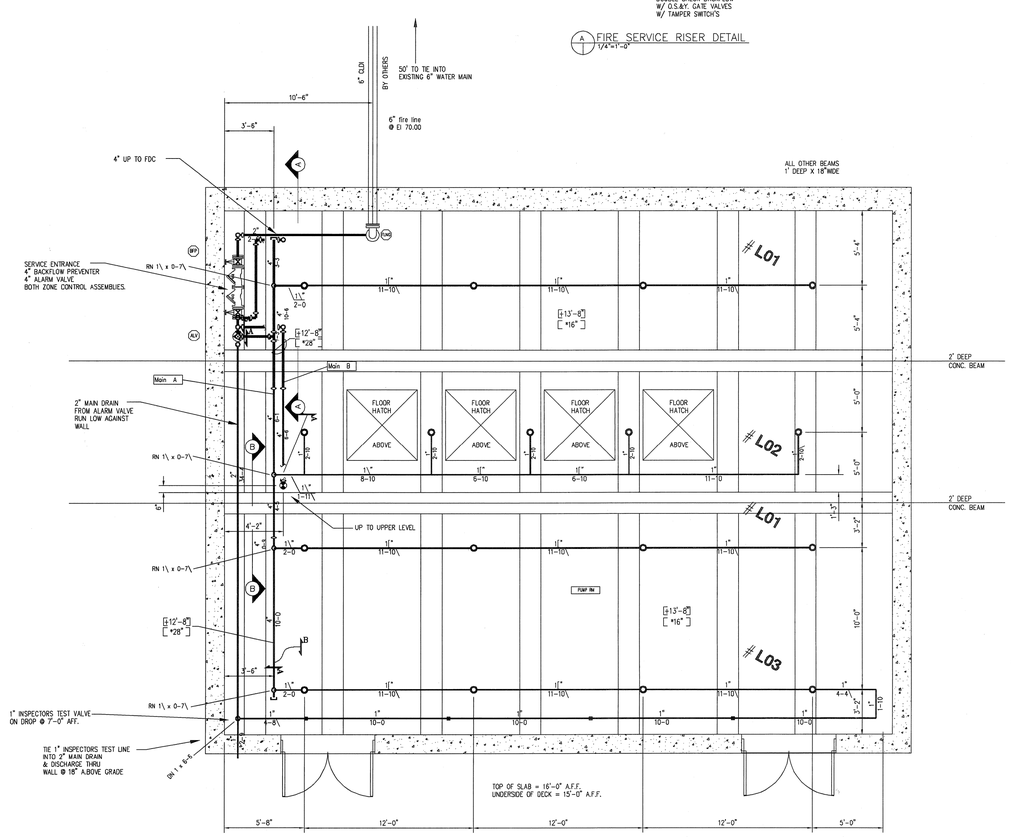
FLOW TEST DATA

DATE: 12/10/03
LOCATION: MILL ST & PROSPECT ST.
STATIC: 82 psi
RESIDULE: 76 psi
FLOW: 895 gpm
1- 2 1/2" PORT FLOWING.
BY: PAWTUCKET WATER SUPPLY BOARD

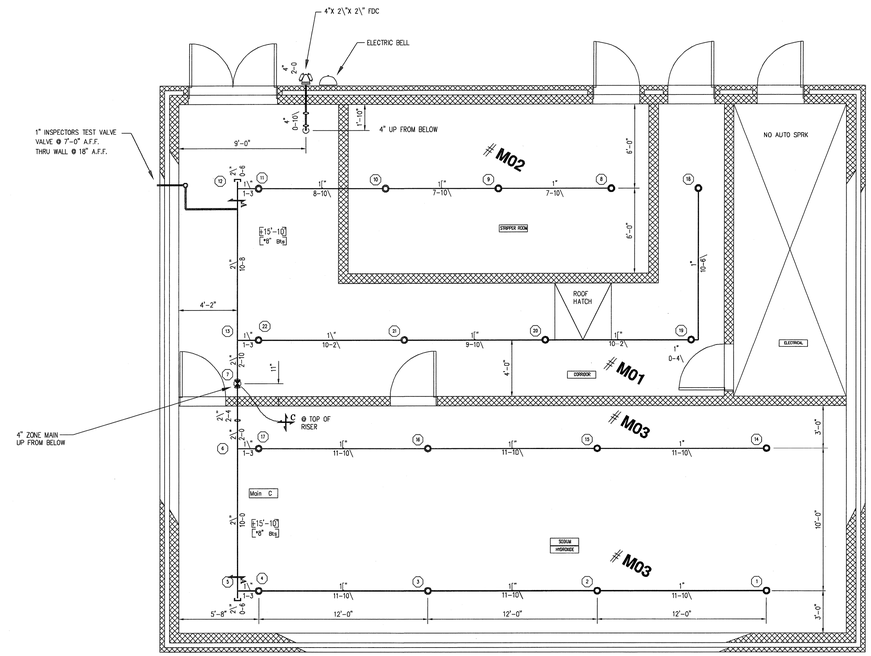
HYDRALIC DESIGN INFO.

CALC # 1455-12.WX1

THIS SYSTEM HAS BEEN HYDRALICALLY CALCULATED BASED ON N.F.P.A. 13 ORDINARY HAZARD GROUP 1 THIS SYSTEM WILL DELIVER A DENSITY OF .15 GPM/SQFT OF FLOOR AREA OVER A MAX. AREA OF 2000 SQFT WHEN SUPPLIED WITH WATER AT A RATE OF 611 GPM AT 44.5 PSI AT THE BASE OF THE RISER.
REF. POINT # TEST
TOTAL HOSE ALLOWANCE = 250 GPM @ TEST



LOWER LEVEL EL. 59.00
1/4"=1'-0"



UNDERSIDE OF DECK = 16'-6" A.F.F.

UPPER LEVEL EL. 75.00
1/4"=1'-0"

AS BUILT DRAWING

PACKAGE 12
RAW WATER PUMPING STATION

ROBERT H. SHELDON
No. 4103
REGISTERED PROFESSIONAL ENGINEER
3/17/09

NORTH

HYDRAULIC DESIGN CRITERIA

Density .15 GPM / 1500 SQ. FT.
Spacing SEE PLAN
K Factor 5.6 Head Size 1/2"
Hose Allowance 250 GPM
Water Supply
Static 82 PSI
Residual 76 PSI
Water Flowing 895 GPM
Size of Supply 6"

SYSTEM DESIGN CRITERIA

1.Type of Hazard ORDINARY GRP 1 2.Deflector Distance Varies
3.Pipe Schedule Used N/A 4.Maximum Spacing 130 SQ.FT.
5.Type of Construction OBSTRUCTED & UNOBSTRUCTED
6.Maximum Square Footage Allowded 130 SQ.FT. OR SPRK. LISTING
7.Hazard Group or Hydraulically Calculated
8.Sprinklers in this system are designed to be in the center of the ceiling tile
9.Owner is to provide heat thoughout the building to prevent water in the system from freezing

KEY PLAN

GENERAL NOTES

1.(•) Denotes distance down in inches from deck to center line of pipe
2.+[0'-0"] Denotes distance in feet and inches from floor up to center line of pipe
3.○○ Denotes Hydraulic Reference Points.
4. This system has been designed based on N.F.P.A. 13 2002 ed. and all State & Local codes.
5. = Denotes pipe sleeve locations.
6. Denotes seismic brace location.

REVISIONS

No.	Date	Description
1	10/9/07	AS BUILT CONDITION

Symbol	HANGERS	Description
	ALL HANGERS PER N.F.P.A. 13	

NUMBER OF SPRINKLERS

Total This Sheet: 34 — Total This Job:

Symbol	Size	Degree	Make	Model	No.Req'd
○	1/2"	155	VIC	V2703 Q.R. BRASS UPRIGHT	34

ENGINEERED BY
CPL
NICET LEVEL IV
93648
DATE
03/07/06
SCALE
1/4"=1'-0"
DRAWING NUMBER
FP-12.1

JOB NAME
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
85 BRANCH STREET
PAWTUCKET, RHODE ISLAND

STORIES 2 LEVELS | CONST. CONCRETE
CONTRACT No. 1455

ARDEN FM
FM FIRE PROTECTION SYSTEMS CO.
DIVISION OF ARDEN ENGINEERING CONSTRUCTORS LLC
505 NARRAGANSETT PARK DRIVE
PAWTUCKET, RI. 02861
(401) 727-3500

SINGLE LINE AND SCHEMATIC DIAGRAM SYMBOLS

- COMBINATION DISCONNECT SWITCH AND MAGNETIC STARTER
- MCB C — COMBINATION MOLDED CASE BREAKER AND MAGNETIC CONTACTOR
- MCP — COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC ACROSS THE LINE STARTER
- MCP / RVNR — COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC STARTER AS FOLLOWS:
  - 2S2W = 2 SPEED 2 WINDING
  - 2S1W = 2 SPEED 1 WINDING
  - RVNR = REDUCED VOLTAGE NON-REVERSING AUTO-TRANSFORMER
  - FVR = FULL VOLTAGE REVERSING
  - SSRV = SOLID STATE REDUCED VOLTAGE
- 100/30 — MOLDED CASE AIR CIRCUIT BREAKER (3 POLE UNLESS OTHERWISE NOTED) 100 REFERS TO FRAME AMPERES SIZE & 30 REFERS TO TRIP RATING
- TRANSFORMER (AS NOTED)
- DELTA
- GROUNDED WYE
- LIGHTNING ARRESTER, NUMERAL DENOTES QUANTITY
- SURGE CAPACITOR
- GROUND
- CLF — FUSE- CLF DENOTES CURRENT LIMITING TYPE
- MOTOR, NUMBER INDICATES HORSEPOWER
- 10/9 — 2 WINDING, 2 SPEED MOTOR
- ELECTRIC HEATING UNIT
- E 1600/600 — LOW VOLTAGE POWER CIRCUIT BREAKER, DRAW OUT TYPE, MANUALLY OR ELECTRICALLY OPERATED WITH STATIC TRIP DEVICES AND GROUND SENSOR. UPPER NUMERAL INDICATES FRAME SIZE, LOWER NUMERAL INDICATES TRIP SETTING. "E" INDICATES ELECTRICALLY OPERATED.
- 3 / CPT — CPT = CONTROL POWER TRANSFORMER; PT = POTENTIAL TRANSFORMER; NUMERAL DENOTES QUANTITY
- 3 / A — CURRENT TRANSFORMER, NUMERAL DENOTES QUANTITY
- A=AMMETER, V=VOLTMETER, W=WATTMETER, D=DEMAND METER; PF=POWER FACTOR METER, VAR=VARMETER, KWH=KILOWATTHOUR METER, F=FREQUENCY METER
- R — INDICATING LIGHTS R=RED, B=BLUE, G=GREEN, A=AMBER
- K — MECHANICALLY INTERLOCKED (KEY)
- E — ELECTRICALLY INTERLOCKED
- NORMALLY OPEN CONTACT (DENERGIZED POSITION)
- NORMALLY CLOSED CONTACT (DENERGIZED POSITION)
- VS — VOLTMETER SELECTOR SWITCH
- AS — AMMETER SELECTOR SWITCH
- CS — CIRCUIT BREAKER CONTROL SWITCH
- CTB — CURRENT TEST BLOCK
- PTB — POTENTIAL TEST BLOCK
- SYS — SYNCHRONIZING SWITCH
- TB — TEST BLOCK
- GF — GROUND FAULT PROTECTION
- S — PREWIRED PACKAGE MOTOR WITH COMPLETE MOTOR, MOTOR STARTER AND ALL NECESSARY CONTROLS. NUMERAL INDICATES KILOWATT RATING OR HORSEPOWER.
- 26 — PROTECTIVE RELAY
  - 25 – SYNCHROCHECK RELAY
  - 27 – UNDERVOLTAGE RELAY
  - 43 – TRANSFER DEVICE OVERCURRENT RELAY
  - 51 – INVERSE TIME OVERCURRENT RELAY
  - 64 – GROUND PROTECTIVE RELAY
  - 71 – TRANSFORMER LEVEL
  - 83 – TRANSFER RELAY
  - 87 – DIFFERENTIAL RELAY
  - 26 – THERMAL DEVICE
  - 32 – REVERSE POWER RELAY
  - 50 – INSTANTANEOUS
  - 62 – TIME DELAY RELAY
  - 67 – DIRECTIONAL OVERCURRENT
  - 74 – ALARM RELAY
  - 86 – LOCKOUT RELAY, HAND RESET
- RES — NEUTRAL GROUNDING RESISTOR (MEDIUM VOLTAGE)
- SURGE ARRESTOR
- 52 / 1200 — MEDIUM VOLTAGE POWER CIRCUIT BREAKER DRAWOUT TYPE, ELECTRICALLY OPERATED, STORED-ENERGY. NUMERAL INDICATES CONTINUOUS AMPERE RATING
- CLF — DRAW OUT STYLE; CPT = CONTROL POWER TRANSFORMER; PT = POTENTIAL TRANSFORMER; NUMERAL DENOTES QUANTITY
- K — KIRK KEY INTERLOCK
- CS — CONTROL SWITCH
- UPS — UNINTERRUPTABLE POWER SUPPLY
- M — DIGITAL POWER METERING
- P1 — CABLE/CONDUIT TAG. P – INDICATES POWER CABLE; C – INDICATES CONTROL CABLE; S – SIGNAL CABLE

LIGHTING LEGEND

- CEILING OUTLET AND INCANDESCENT OR HIGH INTENSITY DISCHARGE FIXTURE "G" INDICATES FIXTURE TYPE, "b"INDICATES CONTROLLED BY SWITCH "b" "2" INDICATES CIRCUIT NUMBER
- WALL MOUNTED LIGHTING FIXTURES. NOTATION SAME AS ABOVE
- FLUORESCENT LIGHTING FIXTURE. NOTATION SAME AS ABOVE
- FLUORESCENT NIGHT LIGHT LIGHTING FIXTURE. NOTATION SAME AS ABOVE FIXTURE SHALL BE UNSWITCHED
- WALL OUTLET AND EXIT SIGN
- CEILING OUTLET AND EXIT SIGN (ARROW INDICATES DIRECTION OF EGRESS)
- ELU#1 — EMERGENCY LIGHTING BATTERY UNIT WITH LIGHT HEADS. 1 DENOTES UNIT NUMBER
- ELU#1 — REMOTE EMERGENCY LIGHTING HEAD, WALL MOUNTED
- ELU#1 — REMOTE EMERGENCY LIGHTING HEAD, CEILING MOUNTED
- ELU#1 DENOTES CONNECTED TO ELU#1
- TYPE "A" — INDICATES THAT ALL LIGHTING FIXTURES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS ARE TYPE "A"
- POLE MOUNTED LIGHT FIXTURE
- PC — PHOTOCELL

SWITCH LEGEND

S_C	SINGLE POLE SWITCH CONTROLLING LIGHTS "C"
S^2	DOUBLE POLE SWITCH
S^3	THREE WAY SWITCH
S^4	FOUR WAY SWITCH
S^T	WALL MOUNTED TIMER SWITCH

WIRING DEVICE LEGEND

- 20A-2P-3W-208V RECEPTACLE
- 13 — DUPLEX RECEPTACLE, GROUNDED TYPE-13 INDICATES CIRCUIT NUMBER UON MOUNTING HEIGHT SHALL BE AS PER SPEC. SECTION 16,500
- SIMPLEX RECEPTACLE
- 30 — SPECIAL PURPOSE RECEPTACLE, 240, 2P, 3 WIRE, OR AS OTHERWISE INDICATED (30 INDICATES AMPERE RATING)
- GF — GROUND FAULT RECEPTACLE (MOUNT 4'-0" A.F.F.)

BRANCH CIRCUIT AND FEEDER LEGEND

- CONDUIT RUN EXPOSED (DIAGONALS DENOTE THE NUMBER OF NO. 12 AWG WIRES. IF NO DIAGONALS, 2 NO. 12 WIRES & 1#12 GND IN 3/4" CONDUIT U.O.N.)
- LP1-1,3 — HOMERUN. RUN TO PANEL LP1" CIRCUITS 1 & 3
- CONDUIT RUN CONCEALED (2 NO. 12 WIRES & 1#12 GND IN 3/4" CONDUIT UNLESS OTHERWISE NOTED)
- CONDUIT RUN UNDERGROUND
- FLEXIBLE CONDUIT
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN

MOTOR AND CONTROL LEGEND

- F — DISCONNECT SWITCH, 600 VOLT-30A,3P,UON F INDICATES FUSED TYPE
- P — MANUAL MOTOR STARTER. "P" DENOTES WITH PILOT LIGHT
- MAGNETIC MOTOR STARTER
- UNIT HEATER
- C M,E — LIGHTING OR HEATING CONTACTOR, M-MECHANICALLY, E-ELECTRICALLY HELD TYPE
- T — THERMOSTAT
- EPO — EMERGENCY PUSH BUTTON
- S_M — MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD PROTECTION

FIRE ALARM SYSTEM SYMBOLS

- F — MANUAL FIRE ALARM STATION
- F — FIRE ALARM AUDIO/VISUAL DEVICE
- FIRE ALARM BEACON
- F — FIRE ALARM VISUAL DEVICE
- SD ER — SMOKE DETECTOR, PHOTOELECTRIC TYPE. "ER" ELEVATOR RECALL
- DSD — DUCT SMOKE DETECTOR
- RTS — REMOTE TEST STATION FOR DUCT SMOKE DETECTOR
- HEAT DETECTOR, COMBINATION RATE-OF-RISE AND FIXED TEMPERATURE
- 135 — HEAT DETECTOR, FIXED TEMPERATURE, NUMBER INDICATES TEMPERATURE SETTING
- FS — FLOW SWITCH
- TS — TAMPER SWITCH
- FACP — FIRE ALARM CONTROL PANEL
- FAA — FIRE ALARM ANNUNCIATOR PANEL
- RAI — REMOTE ALARM INDICATING LIGHT

ABBREVIATIONS

2(3#8,1"C.)	2, 1-INCH CONDUITS EACH CONDUIT CONTAINING 3-#8 AWG COPPER WIRES
3/4" CE	EMPTY CONDUIT, WITH PULL STRING. NUMERAL DENOTES SIZE
1-2/C#14TS	ONE-TWO CONDUCTOR, NO. 14 AWG, TWISTED SHIELDED PAIR CABLE
ACV	AIR CONTROL VALVE
AE	ANALYZER ELEMENT
AIT	ANALYZER INDICATING TRANSMITTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AR	AUXILIARY RELAY
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
BC	BATTERY CHARGER
BDTS	BLOWER DISCHARGE TEMPERATURE SWITCH
BP	BYPASS (CONTACT AT MOTOR STARTER)
BWCV	BACKWASH WASTE CONTROL VALVE
CFPWTF	CHEMICAL FILL PANEL WATER TREATMENT FACILITY
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
DMFM	DIGITAL MULTIFUNCTION METER
DPIT	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
DRG. DWG.	DRAWING
DS	DOOR SWITCH FOR SECURITY SYSTEM
EF	EXHAUST FAN
EMH	ELECTRICAL MANHOLE
EPO	EMERGENCY PUSH BUTTON
ETM	ELAPSED TIME METER
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WATER HEATER
FCP	FILTER CONTROL PANEL
FCV	FLOW CONTROL VAVLE
FE	FLOW ELEMENT
FIT	FLOW INDICATOR TRANSMITTER
FLUOR	FLUORESCENT
FS	FLOW SWITCH
FSL	FLOW SWITCH LOW
FT	FLOW TRANSMITTER
FV	FLOW VALVE
FWCV	FILTER WASTE CONTROL VALVE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFR	GROUND FAULT RELAY
GND, GRD	GROUNDING CONDUCTOR (EQUIPMENT)
HOA	HAND-OFF-AUTOMATIC
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
J	JUNCTION BOX
K	KEY INTERLOCK
LC	LOAD CENTER
LE	LEVEL ELEMENT
LIT	LEVEL INDICATOR TRANSMITTER
LL	LOW LEVEL
LSL	LEVEL SWITCH LOW
LSH	LEVEL SWITCH HIGH
LO	LOCKOUT
LR	LATCHING RELAY
LS	LIMIT SWITCH
LT	LEVEL TRANSMITTER
MAU	MAKE UP AIR UNIT
MCC	MOTOR CONTROL CENTER
MH	MANHOLE
MeH	METAL HALIDE
MFR	MANUFACTURER
MOV	MOTOR OPERATED VALVE
MS	MOISTURE SENSOR
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OH	OVERHEAD
OL	MOTOR OVERLOAD HEATER
P	PUMP
PB	PUSHBUTTON CONTROL STATION MOMENTARY CONTACT TYPE, STOP START
PBL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP-START
PBM	PUSHBUTTON CONTROL STATION MAINTAINED CONTACT TYPE, STOP START
PC	PHOTOCELL
PF	POWER FACTOR
PFCC	POWER FACTOR CORRECTION CAPACITOR
PFR	PHASE FAILURE RELAY
PIT	PRESSURE INDICATOR TRANSMITTER
PL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP
PMG	PERMANENT MAGNET GENERATOR
POT	POTENTIOMETER
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSMITTER
RGS	RIGID GALVANIZED STEEL
RP	RELAY PANEL
RTCP	REMOTE TELEMETRY CONTROL PANEL
RTU	REMOTE TELEMETRY UNIT
RWPSCP	RAW WATER PUMP STATION CONTROL PANEL
SOV	SOLENOID VALVE
SSRV	SOFT START REDUCED VOLTAGE
SS	SELECTOR SWITCH
ST	SHUNT TRIP RELAY
SWP	SAMPLE WATER PUMP
TB	TERMINAL BOX
TD	MOTOR TEMPERATURE DETECTOR
TDC	TIME DELAY CLOSING
TDO	TIME DELAY OPENING
TDM	TEMPERATURE DETECTION MODULE
TE/TT	TEMPERATURE ELEMENT/TEMPERATURE TRANSMITTER
TG	TACH GENERATOR
TOC	TOP OF CONCRETE
TQ	TORQUE OVERLOAD SWITCH
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
USP	UNINTERRUPTIBLE SUPPLY PANELBOARD
UV	ULTRAVIOLET
VD	VIBRATION DETECTOR
VFD	VARIABLE FREQUENCY DRIVE
VFDC	VFD POWERED FROM A DC SOURCE
WP	WEATHERPROOF (NEMA 4 UNLESS OTHERWISE NOTED)
WTPCP	WATER TREATMENT PLANT CONTROL PANEL

SECURITY LEGEND

DS	MAGNETIC DOOR SWITCH	EL	ELECTRIC LOCK
SACP	SECURITY ALARM CONTROL PANEL		
DB	DOOR BELL		
KP	KEY PAD		
CR	CARD READER		
S	SECURITY ALARM BEACON		

COMMUNICATIONS SYSTEM SYMBOLS

- TELEPHONE OUTLET - WALL TYPE
- S — CEILING SPEAKER FLUSH MOUNTED
- S — WALL SPEAKER
- WALL MOUNTED INTERCOM HORN, W=WIDE ANGLE, WP=WEATHERPROOF, CR=CORROSION RESISTANT
- A — SPEAKER AMPLIFIER
- A/H — SPEAKER AMPLIFIER WITH HANDSET
- HS — HANDSET-WALL MOUNTED

GENERAL NOTES

1. ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
2. PROVIDE GROUND CONNECTIONS TO WATER PIPES, IN EACH FACILITY BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH TABLE 250-122 OF THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE ACCESSIBLE LOCATIONS.
3. CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
4. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
5. NO CONDUIT SMALLER THAN 3/4" PIPE SIZE NOR WIRE SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
6. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
7. SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED, EXCEPT RECEPTACLES IN OFFICES OR AREAS WITH SUSPENDED CEILINGS SHALL BE MOUNTED 1'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
8. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INSIDE OF THE EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
9. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'-6".
10. LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
11. FOR EXPLANATION OF INSTRUMENTATION SYMBOLS SHOWN ON ELECTRICAL DRAWINGS, SEE INSTRUMENTATION LEGEND AND NOTES ON SHEET I-1.
12. PROVIDE CONDUIT AND WIRE FOR ALL SURGE PROTECTION DEVICES AT INSTRUMENTS AND INSTRUMENTATION PANELS. SURGE PROTECTION DEVICES TO BE PROVIDED BY DIVISION 13 SUPPLIER. INSTALLATION OF INSTRUMENTATION AND ACCESSORIES BY DIVISION 13 CONTRACTOR.
13. CONDUIT AND WIRE (NOT SHOWN) FOR THE HVAC CONTROL EQUIPMENT AND MISCELLANEOUS DEVICES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 15 OF SPECIFICATIONS AND SHALL BE:
    A. 3/4" (MIN.) CONDUIT.
    B. NO. 14 CU. WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED
14. CONDUIT AND WIRE (NOT SHOWN) FOR LIGHTING FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:
    A. 3/4" (MIN.) CONDUIT OR MC CABLE IN FINISHED WALLS/CEILINGS
        A. EXPOSED IN UNFINISHED AREAS.
        B. CONCEALED ABOVE SUSPENDED CEILINGS AND IN WALLS IN FINISHED AREAS.
    B. NO. 12 CU. WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED, INCLUDING GROUND.
15. OUTLET, SWITCH, JUNCTION, PULL AND TERMINAL BOXES SHALL BE PROVIDED WITH NEMA ENCLOSURE AS INDICATED ON THE EQUIPMENT ENCLOSURE SCHEDULE.
16. DUCTLINE CONDUIT SIZES ARE GIVEN IN THE DUCTBANK CABLE/CONDUIT SCHEDULE, WHERE THE SAME CONDUIT NUMBER IS USED BOTH IN THE DUCTLINE AND IN A BUILDING. THE CONDUIT SIZE GIVEN IN THE CONDUIT SCHEDULE APPLIES TO THE CONDUIT IN THE BUILDING ONLY.
17. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.
18. SWITCHGEAR AND MCC COMPARTMENT DESIGNATIONS AS INDICATED BELOW:
    BLANK: NOT INTENDED FOR USE, PLATE ONLY.
    SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE SHOWN.
    SPARE: CONTAINS A COMPLETE BREAKER OR STARTER INSTALLED, SIZE AS INDICATED AVAILABLE FOR FUTURE USE.
19. ALL MOTOR STARTER CONTROL TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR; IN ADDITION TO THE STARTER COIL, IT SHALL INCLUDE RELAYS, TIMERS, MOTOR HEATERS, INDICATING LIGHTS, ETC.

POWER DISTRIBUTION LEGEND

- SURFACE MOUNTED POWER PANEL
- FLUSH MOUNTED POWER PANEL
- SURFACE MOUNTED LIGHTING PANEL
- FLUSH MOUNTED LIGHTING PANEL
- T — TRANSFORMER

SITE AND GROUNDING LEGEND

- POWER COMPANY POLE
- GROUND ROD
- BUILDING GROUND GRID

EARTH TECH AS-BUILT FILE MAY 2008

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FULL SIZE DRAWING = 4"

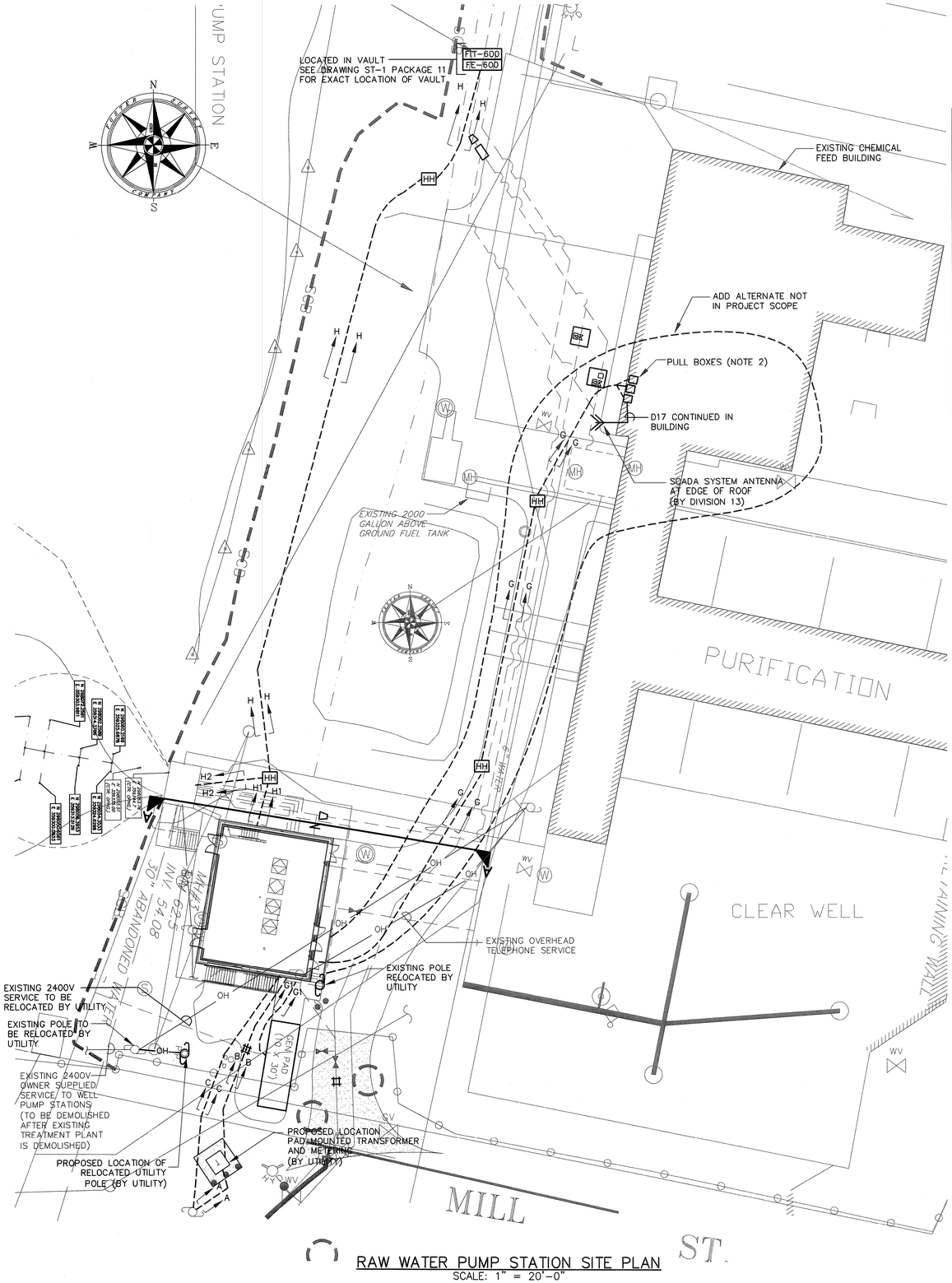
NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		9/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
LEGEND, ABBREVIATIONS AND GENERAL NOTES

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

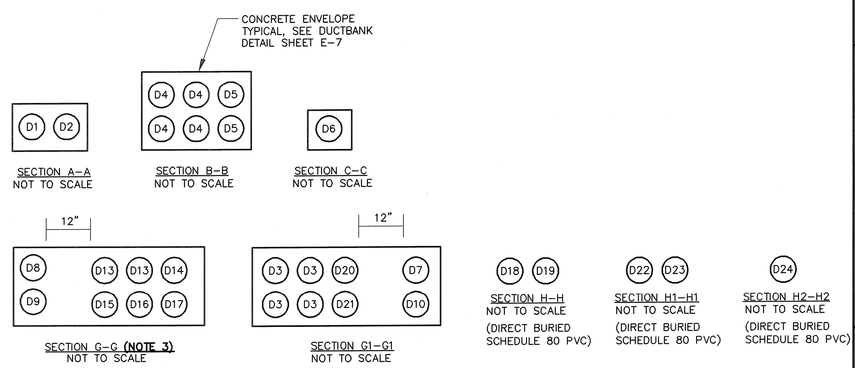
E-1
SHEET OF



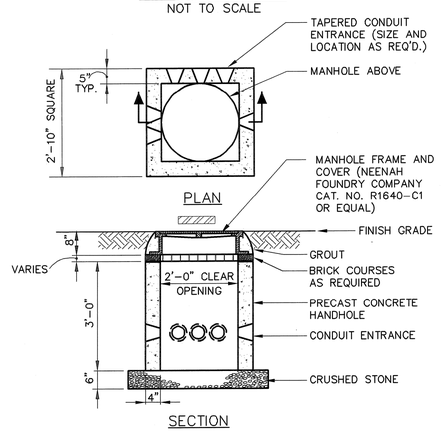
RAW WATER PUMP STATION SITE PLAN
SCALE: 1" = 20'-0"

DUCTBANK CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS	FROM	TO	REMARKS
D1	5"	PRIMARY CABLE	UTILITY RISER POLE	TRANSFORMER	CABLE PROVIDED BY UTILITY
D2	5"	SPARE	UTILITY RISER POLE	TRANSFORMER	
D3	4"	3-400KCMIL, 1#4/0 N & 1#2/0 GRD	RWPS MCC2	GENERATOR	
D4	4"	3-400KCMIL, 1#4/0 N & 1#2/0 GRD	UTILITY TRANSFORMER	RWPS MCC2	
D5	4"	SPARE	UTILITY TRANSFORMER	RWPS MCC2	
D6	3"	12 PAIR TELEPHONE WITH JACKET	UTILITY RISER POLE	TELEPHONE BACKBOARD	
D7	2"	16#14	GENERATOR	SCADA CONTROL PANEL RWPSCP	
D8	3"	3#1/0, 1#4/0 N & 1#2 GRD	RWPS MCC2	EXISTING BUILDING POWER FEED	TO 480V DELTA TRANSFORMER
D9	3"	SPARE	RWPS MCC2	EXISTING BUILDING POWER FEED	CAP AT WALL
D10	2"	20#14	GENERATOR	JB1 IN ELECTRICAL ROOM	RWPSCP,E-STOP,REMOTE ANNUNCIATOR
D13	2"	SCADA (10#14)	RWPSCP	EXISTING BUILDING CONTROL PANEL	
D14	2"	TYPE/QUANTITY BY MANUFACTURER	RWPSCP	EXISTING BUILDING SECURITY	CAP AT WALL
D15	2"	TYPE/QUANTITY BY MANUFACTURER	RWPS FACP	EXISTING BUILDING FIRE ALARM	
D16	2"	12 PAIR TELEPHONE WITH JACKET	RWPS TELEPHONE BACKBOARD	EXISTING BUILDING TELEPHONE	
D17	2"	ANTENNA CABLE	RWPSCP	SCADA ANTENNA	CABLE SUPPLIED IN DIVISION 13
D18	2"	2-2/C#16 TS	HAND HOLE	FIT-600	
D19	2"	SPARE	HAND HOLE	VAULT	
D20	2"	7#8 & 3#8 GND	PANEL LP1	GENERATOR	120V GENERATOR LOADS
D21	2"	8#8 & 4#8 GND	PANEL LP1	GENERATOR	120V GENERATOR LOADS
D22	2"	5-2/C#16 TS	RWPSCP	HAND HOLD	
D23	2"	SPARE	RWPSCP	HAND HOLD	
D24	2"	3-2/C#16 TS	HAND HOLE	GATE HOUSE	



DUCT SECTIONS
NOT TO SCALE



SIGNAL HANDHOLE
NOT TO SCALE

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE SHEET E-1.
2. ELECTRICAL WORK ASSOCIATED WITH RE-FEEDING THE EXISTING STRUCTURE, EMERGENCY LIGHTING, FIRE ALARM, TELEPHONE AND SECURITY SYSTEMS IN THE EXISTING STRUCTURE NOT SHOWN.
3. DUCTBANK G-G AND ASSOCIATED HANDHOLES, PULLBOXES, CONDUIT AND WIRE SHALL BE AN ADD ALTERNATE AND NOT IN THE PROJECT SCOPE.

EARTH TECH AS-BUILT FILE MAY 2008

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FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS-BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 10/31/06

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
SITE PLAN

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

E-2
SHEET OF

PLOT FILE DATE LAYOUT: 10/31/06 11:33 AM
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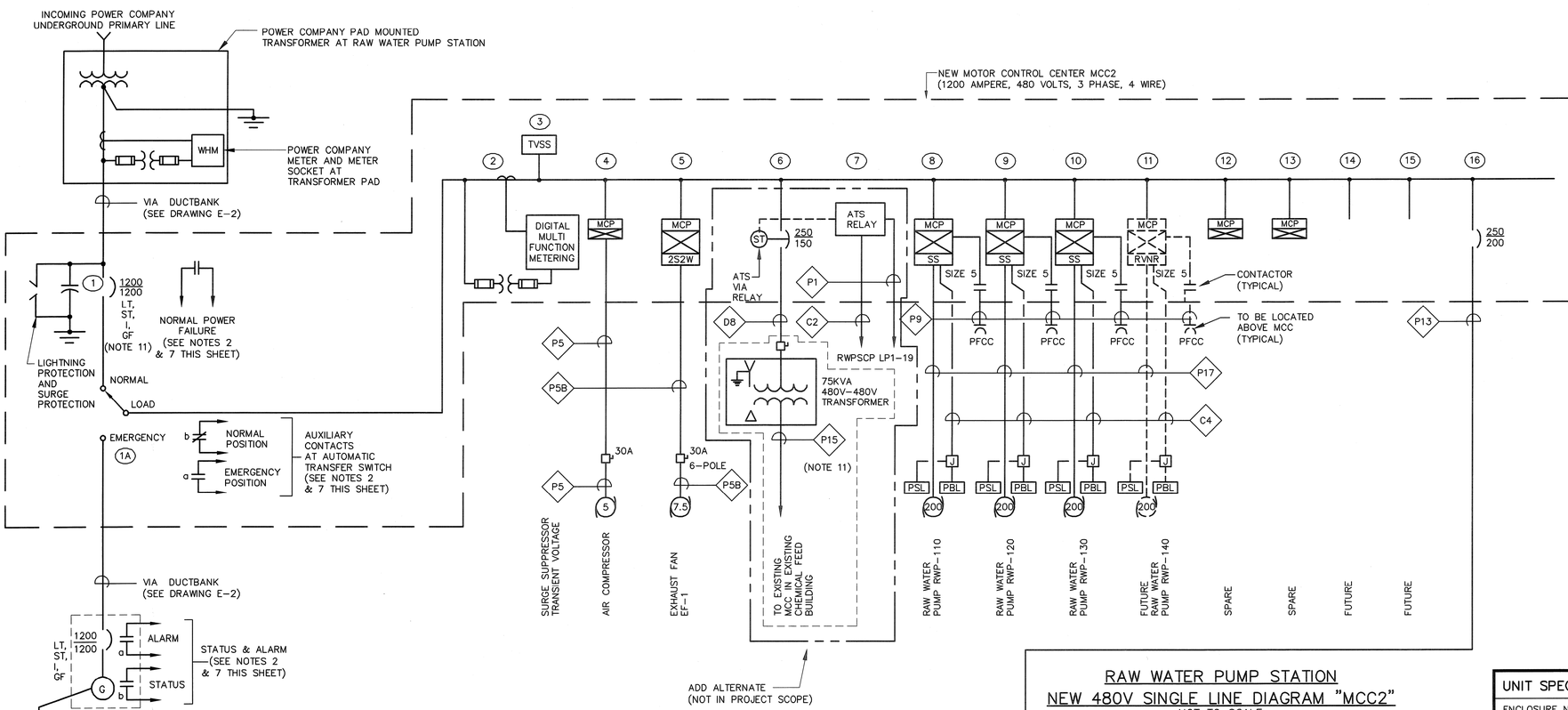
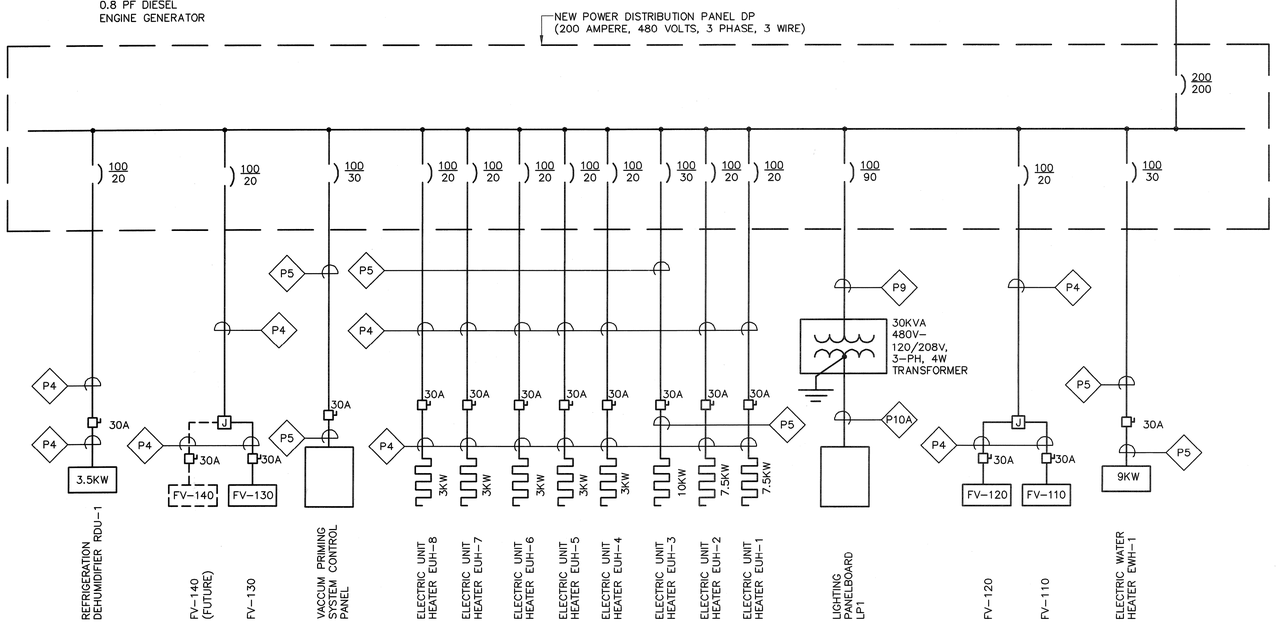


RAW WATER PUMP STATION
NEW 480V SINGLE LINE DIAGRAM "MCC2"
NOT TO SCALE

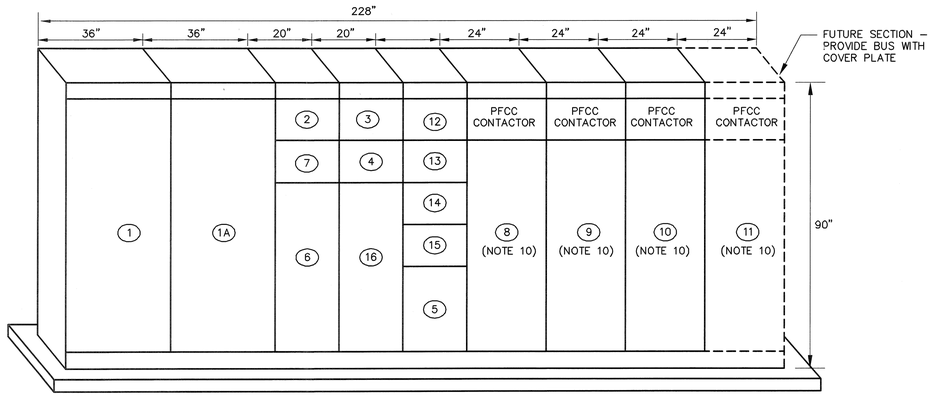
NOTES:

1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. REFER TO SPECIFICATIONS FOR QUANTITY OF CONTACTS AND FUNCTION.
3. SEE PLANS FOR SPECIFIC CONCRETE PAD LAYOUT AND REQUIREMENTS.
4. COORDINATE ALL FINAL METERING REQUIREMENT WITH THE POWER COMPANY. IN ORDER TO ESTABLISH COMPLETED CONTRACT DOCUMENTS AND TO INDICATE THIS REQUIREMENT, METERING HAS BEEN SHOWN AS INDICATED ON THESE DRAWINGS. FINAL METERING REQUIREMENTS SHALL BE AS AGREED TO AND AS REQUIRED BY THE POWER COMPANY. FINAL INSTALLATION AND REQUIREMENTS FOR THIS METERING SHALL BE ELECTRICAL CONTRACTORS RESPONSIBILITY AT NO ADDITIONAL COST TO THE OWNER. COORDINATE ALL WORK WITH THE POWER COMPANY.
5. PROVIDE CONTROL POWER TRANSFORMER FOR DIGITAL METERING, INDICATING LIGHTS AND PHASE FAILURE (PF) RELAY.
6. TRANSFORMERS SHALL BE INSTALLED FOR EITHER WALL OR FLOOR MOUNTING. PROVIDE ALL STRUCTURAL REQUIREMENTS FOR MOUNTING TO PAINTED STEEL FRAME TO BE PROVIDED FOR A COMPLETE INSTALLATION. FINAL INSTALLATION (WALL OR FLOOR) SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. SEE MOUNTING DETAILS AS SHOWN ON DRAWINGS.
7. PROVIDE CONNECTIONS AND WIRING FROM THIS EQUIPMENT TO SCADA SYSTEM FOR EACH LOCATION SHOWN.
8. FOR DUCTBANK SECTIONS, CONDUIT AND CABLE SCHEDULES SEE DRAWING E-2.
9. SEE SHEET E-6 FOR POWER, CONTROL AND SIGNAL CABLE/CONDUIT SCHEDULES.
10. REFER TO STRUCTURAL DRAWINGS FOR LOCATION OF CONCRETE BEAMS. VERIFY ACCESS TO BOTTOM OF MCC FOR CONDUITS TO RAW WATER PUMPS WHEN ALIGNING MCC ON BASE PAD.
11. REFEED EXISTING MCC WHEN POWER FEED TO EXISTING STRUCTURE IS DEMOLISHED.

UNIT SPECIFICATIONS	MOTOR CONTROL CENTER (MCC2)
ENCLOSURE NEMA	☐ 3R ☒ 12 ☐ 1A (GASKETED)
DIMENSIONS	☒ AS SHOWN ON FRONT ELEVATION ☐ FRONT AND REAR
UNIT MOUNTING	☒ FRONT ONLY
SERVICE	480 VOLTS, 3 PHASE, 4 WIRE
SHORT CIRCUIT WITHSTAND RATING	65,000 A RMS SYM
MAIN BUS CAPACITY	☐ 800A STD ☒ 1200 A SPECIAL
NEUTRAL BUS CAPACITY	☐ FULL ☒ HALF ☐ NOT REQUIRED
INCOMING CABLE SIZE	400 KCMIL NO. PER PHASE 4
CABLE ENTRY	☐ TOP ☒ BOTTOM
MAIN CIRCUIT BREAKER(S)	
	☐ MOLDED CASE
	☐ MOLDED CASE W/SOLID STATE TRIP UNIT (100% RATED)
	☒ INSULATED CASE POWER BREAKER (100% RATED)
	☐ NOT REQUIRED (MAIN LUGS ONLY)



RAW WATER PUMP STATION
FRONT ELEVATION "MCC2"
NOT TO SCALE



EARTH TECH AS-BUILT FILE MAY 2008

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NO.	REVISIONS	BY	DATE
A	REV. A CLIENT REVIEW	DPB	MAY 2006
B	REV. B AGENCY REVIEW		7/22/05
0	ISSUED FOR CONSTRUCTION		8/16/05
1	ISSUED FOR RFI POSTED SET		10/28/05
2	AS-BUILT DRAWING FILE		10/31/06

FULL SIZE DRAWING = 4"

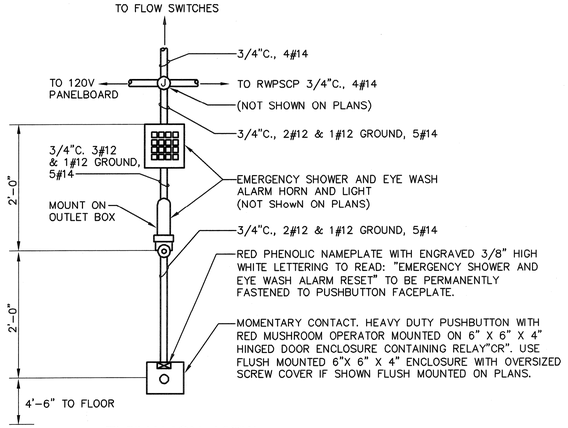
ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 3/7/09

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
480V SINGLE LINE DIAGRAM "MCC2"

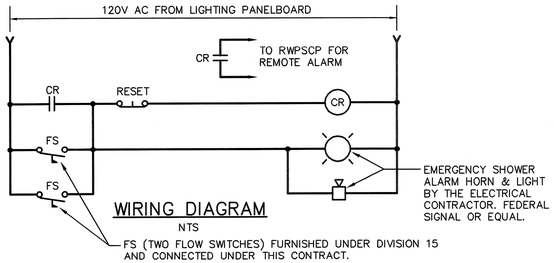
DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

E-3
SHEET OF

PLOT FILE USER: LASSEIGNE 3/9/2009 11:33 AM



ELEVATION VIEW
NOT TO SCALE

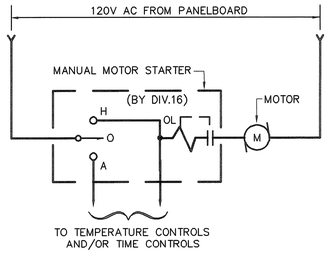


WIRING DIAGRAM
NTS

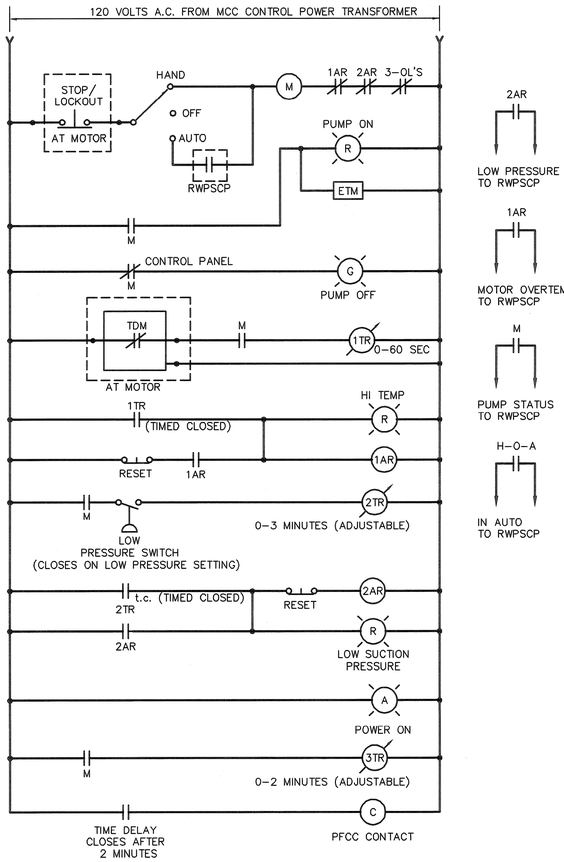
NOTES:

1. ALL EXPOSED SURFACES OF COMPONENTS SHALL HAVE A YELLOW ENAMEL FINISH, INCLUDING CONDUIT (WITHIN 10'–0" RADIUS OF THE STATION, BOXES, ENCLOSURE AND HORN GRILLE.
2. ALL EQUIPMENT PROVIDED UNDER DIVISION 16 UNLESS OTHERWISE NOTED.

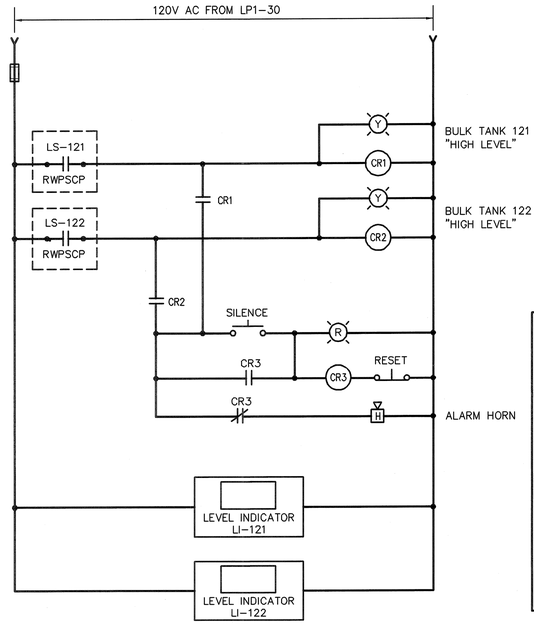
EMERGENCY SHOWER AND EYE WASH ALARM STATION
NOT TO SCALE



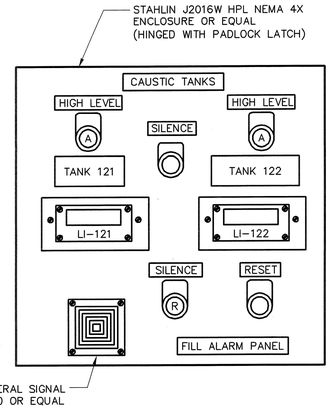
CONTROL WIRING DIAGRAM 1–PHASE EXHAUST FAN
NOT TO SCALE



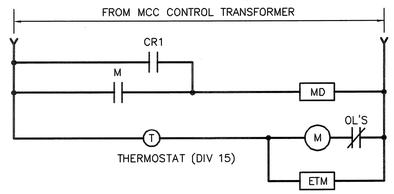
CONTROL WIRING DIAGRAM RAW WATER PUMPS
NOT TO SCALE
(ALL DEVICES AT MCC UNLESS OTHERWISE NOTED)



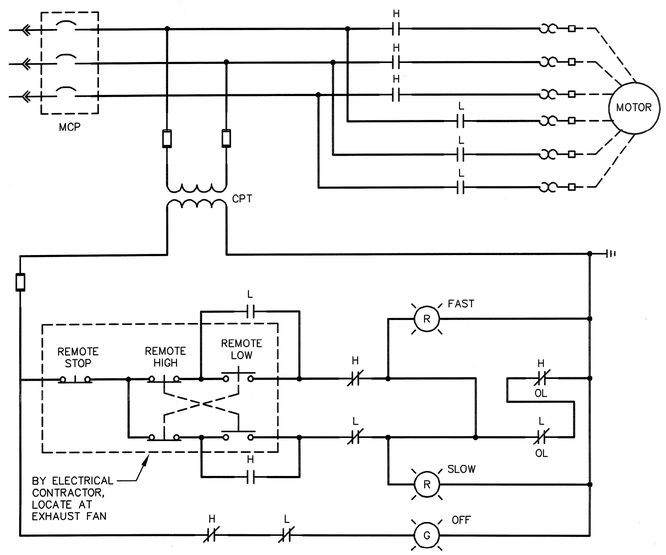
CHEMICAL SYSTEM FILL STATION WIRING DIAGRAM
NOT TO SCALE



CHEMICAL SYSTEM FILL STATION CONTROL PANEL (CFCPRWPS)
NOT TO SCALE
(PROVIDED UNDER DIVISION 13)



EXHAUST FAN AND DAMPER CONTROL
NOT TO SCALE



CONTROL WIRING DIAGRAM 2–SPEED, 2–WINDING EXHAUST FAN
NOT TO SCALE

EARTH TECH AS-BUILT FILE MAY 2008

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NO.	REVISIONS	BY	DATE
2	AS–BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RI1 POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/28/05
B	REV. & AGENCY REVIEW		9/16/05
A	REV. & CLIENT REVIEW		7/22/05

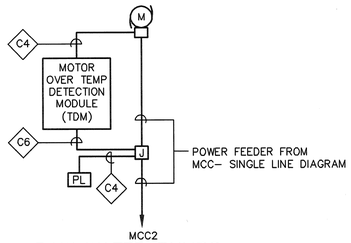
ROBERT H. SHELDON 4103 REGISTERED PROFESSIONAL ENGINEER No. 7/27/05

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
CONTROL WIRING DIAGRAMS

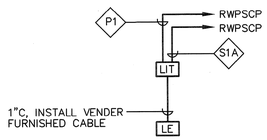
DESIGNED BY DM	DWG SCALE NONE
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

E–4
SHEET OF

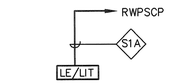
PLOT FILE NAME: G:\PROJECTS\...\E-4.DWG 7/27/2005 11:33 AM



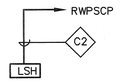
RAW WATER PUMPS BLOCK WIRING DIAGRAM
NOT TO SCALE



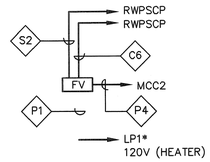
TYPICAL FOR: LE/LIT–111, LE/LIT–121
LE–LIT–122



TYPICAL FOR: LE/LIT–113
LE/LIT–123

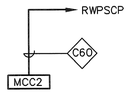


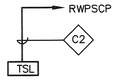
TYPICAL FOR: LSH–135



NOTE: * – REFER TO FLOOR PLAN FOR CIRCUIT NUMBERS

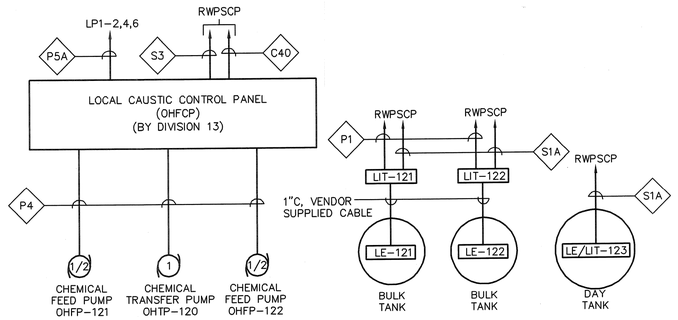
TYPICAL FOR: FV–110, FV–120, FV–130, FV–140(FUTURE)



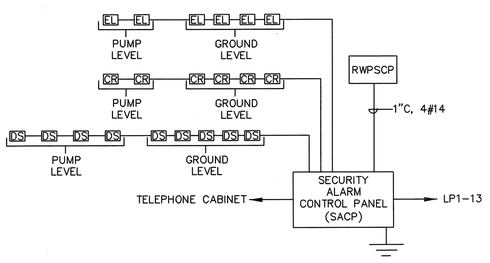


TYPICAL FOR: TSL–143

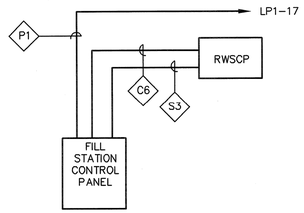
TYPICAL INSTRUMENTATION BLOCK WIRING DIAGRAMS
NOT TO SCALE



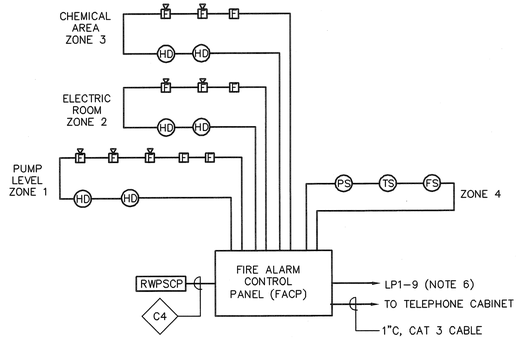
BLOCK INTERCONNECTION DIAGRAM CAUSTIC FEED SYSTEM
NOT TO SCALE



SECURITY SYSTEM RISER DIAGRAM
NOT TO SCALE



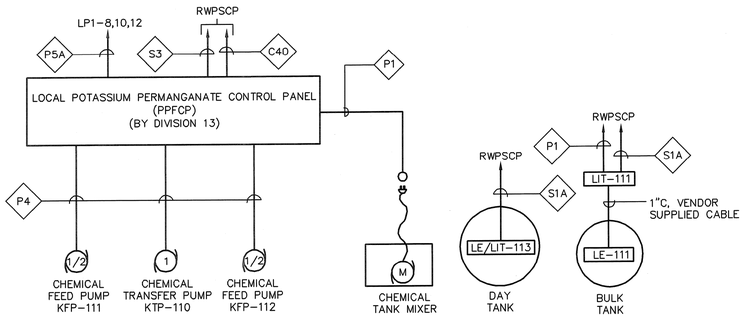
CHEMICAL FILL STATION CONTROL PANEL BLOCK WIRING DIAGRAM
NOT TO SCALE



FIRE ALARM RISER DIAGRAM
NOT TO SCALE

FIRE ALARM SYSTEM NOTES

1. SEE SHEET E–1 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.
2. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS NOTED OTHERWISE.
3. SYSTEM WIRING SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT SUPPLIERS APPROVED SHOP DRAWINGS AND WIRING DIAGRAMS.
4. RISER DIAGRAM MAY NOT SHOW ENTIRE SYSTEM. REFER TO FLOOR PLANS FOR FINAL QUANTITIES AND LOCATIONS OF SYSTEM DEVICES AND EQUIPMENT.
5. TWO CIRCUITS ARE REQUIRED FOR AUDIO/VISUAL SIGNALS. SIGNALS SHALL BE ALTERNATELY WIRED.
6. PROVIDE CIRCUIT BREAKER HANDLE LOCK ON POWER CIRCUIT. HANDLE LOCK SHALL ALLOW THE CIRCUIT BREAKER TO TRIP, BUT PREVENT SWITCHING OF THE CIRCUIT BREAKER TO THE "OFF" POSITION.
7. REFER TO THE HVAC AND FIRE PROTECTION DRAWINGS FOR EXACT LOCATION OF ALL EQUIPMENT REQUIRING FIRE ALARM SYSTEM INTERFACE.
8. CONTRACTOR TO PROVIDE ALL DEVICES AS SHOWN AND AS REQUIRED BY LOCAL FIRE MARSHAL.



BLOCK INTERCONNECTION DIAGRAM POTASSIUM PERMANGANATE FEED SYSTEM
NOT TO SCALE

EarthTech
A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371–4000

FULL SIZE DRAWING = 4"

NO.	REVISIONS	BY	DATE
2	AS–BUILT DRAWING FILE	DPB	MAY 2008
1	ISSUED FOR RFI POSTED SET		10/31/06
0	ISSUED FOR CONSTRUCTION		10/26/05
B	REV. B AGENCY REVIEW		8/15/05
A	REV. A CLIENT REVIEW		7/22/05

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
BLOCK WIRING DIAGRAMS

DESIGNED BY DM	DWG SCALE NONE
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

E–5
SHEET OF

EARTH TECH AS-BUILT FILE MAY 2008

Plot File Date Created: 5/9/2008 11:33 AM

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	MANUFACTURER	CATALOG NO.	DESCRIPTION	WATTS	FIXTURE				REMARKS
				FIXT.	TYPE	MTG	LAMPS	VOLTS	
A	LITHONIA	LA23277GEB10RS	1X4 FLUORESCENT INDUSTRIAL STRIP LIGHTING FIXTURE	65	FLUOR.	PENDANT	2-T8	120	
	HOLOPHANE								
	HUBBELL								
A1	APPLETON	FVH244277SOF	1X4 FLUORESCENT ENCLOSED AND GASKETED INDUSTRIAL LIGHTING FIXTURE	90	FLUOR.	PENDANT	2-T8HO	120	NEMA 4/4X RATED
	LITHONIA								
	HUBBELL								
A2	LITHONIA	VDC232120GEB10RS	7"X4' FLUORESCENT ENCLOSED CORNER LIGHTING FIXTURE	65	FLUOR.	WALL	2-T8	120	
	HOLOPHANE								
	HUBBELL								
S	FAILSAFE	MHTWHE70N277F1BLK	EXTERIOR WALL PACK	70	MH	WALL	1	120	WIRE WITH H-O-A AND PHOTOCELL ON BUILDING THROUGH LIGHTING CONTROL PANEL
	LITHONIA								
	HUBBELL								

PANELBOARD SCHEDULE "LP1"

PANEL LP1 — VOLTS 120/208 — MOUNT. SURFACE — INTEGRAL TVSS
MAIN 100A MCB — AMPS 100 — AIC 10,000
PH/WIRE 3/4 — LOC. RWPS

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	LIGHTING LOWER LEVEL	1.00	2.00			1.00			2
3	20/1	LIGHTING UPPER LEVEL	1.20		2.20		1.00	SODIUM HYDROXIDE CP	30/3	4
5	20/1	EMERGENCY LIGHTING ELU-1	0.25			1.25	1.00			6
7	20/1	MOTORIZED DAMPERS (UL) & EF-4	0.50	1.50			1.00			8
9	20/1	FACP	0.50		1.50		1.00	POTASSIUM PERMANGANATE CP	30/3	10
11	30/1	RWPSCP	1.50			2.50	1.00			12
13	20/1	SACP	0.50	1.50			1.00	RECEPTACLES (CHEMICAL AREA)	20/1*	14
15	20/1	LIGHT, EYE WASH, CHEM ROOM	1.00		0.75		0.75	RECEPTACLES (ELECTRICAL ROOM)	20/1	16
17	20/1	CHEMICAL FILL PANEL	1.00			2.00	1.00	RECEPTACLES (PUMP LEVEL)	20/1*	18
19	20/1	SPARE	0.50	1.00			0.50	EXHUST FANS EF-2 & M. DAMPER	20/1	20
21	20/1	OUTSIDE LIGHTING	0.90		1.40		0.50	EF-1, MD-3,MD-4	20/1	22
23	20/1	EMERGENCY LIGHTING ELU-2	0.25			0.55	0.30	RECEPTACLE (EXTERIOR)	20/1*	24
25	20/1	RECEPTACLE (TELEPHONE CABINET)	0.25	0.25			0.50	SPARE	20/1	26
27	20/1	SPARE	1.00		1.00		0.50	SPARE	20/1	28
29	20/1	SPARE	1.00			1.00	0.50	GEN. BATTERY CHARGER	20/1	30
31	20/1	SPARE	1.00	1.00			0.50	SPARE	20/1	32
33	20/1	SPARE	1.00		1.00		0.50	ELECTRIC DOOR LOCKS	20/1	34
35	60/2	GENERATOR JACKET WATER HEATER	1.00					EF-3 & M. DAMPER	20/1	36
37			1.00	0.50				R.A.M. PUMPS	20/1	38
39	20/1	SPARE	1.00		0.50			AIT-201	20/1	40
41	20/1	SPARE	0.50			0.50		EMERGENCY EYE WASH CHEM. ROOM	20/1	42
		TOTAL kVA BY PHASE -		7.50	8.60	7.30		TOTAL KVA-	14.88	
		DEMAND kVA BY PHASE -		5.20	5.28	4.40		TOTAL AMPERES-	41.33	

* - GFCI CIRCUIT BREAKER

POWER CABLE/CONDUIT SCHEDULE *

SYMBOL	CONDUIT SIZE	CONDUCTORS	GRD
P1	3/4"	2#12	1#12
P2	3/4"	2#10	1#10
P3	3/4"	2#8	1#10
P4	3/4"	3#12	1#12
P5	3/4"	3#10	1#10
P5A	3/4"	4#10	1#10
P5B	3/4"	6#10	1#10
P6	3/4"	3#8	1#10
P7	1"	3#6	1#10
P8	1 1/2"	3#4	1#10
P9	1 1/2"	3#2	1#10
P9A	1 1/2"	3#3	1#10
P9B	1 1/2"	4#3	1#10
P10	1 1/2"	3#1	1#6
P10A	1 1/2"	4#1	1#6
P11	2"	3#1/0	1#2
P11A	2"	4#1/0	1#2
P12	2"	3#2/0	1#2
P13	2"	3#3/0	1#2
P13A	(2 SETS OF) 2"	(2 SETS OF) 3#3/0	(2 SETS OF) 1#2
P13B	(2 SETS OF) 2"	(2 SETS OF) 4#3/0	(2 SETS OF) 1#2
P14	2 1/2"	3#4/0	1#2
P14A	2 1/2"	4#4/0	1#2
P15	2 1/2"	3-250 KCMIL	1#2/0
P16	3"	3-350 KCMIL	1#2/0
P16A	(2 SETS OF)3 1/2"	(2 SETS OF) 3-350 KCMIL	(2 SETS OF) 1#2/0
P17	3 1/2"	3-500 KCMIL & 6#14	1#2/0
P18	(2 SETS OF)3 1/2"	(2 SETS OF) 3-300 KCMIL	(2 SETS OF) 1#2/0
P18A	(2 SETS OF)3 1/2"	(2 SETS OF) 3-300 KCMIL, 2#10	(2 SETS OF) 1#2/0
P18B	(2 SETS OF)3 1/2"	(2 SETS OF) 3-300 KCMIL & 1#4/0 N	(2 SETS OF) 1#2/0

CONTROL CABLE/CONDUIT SCHEDULE *

SYMBOL	CONDUIT SIZE	CONDUCTORS
C2	3/4"	2#14
C3	3/4"	3#14
C4	3/4"	4#14
C5	3/4"	5#14
C6	3/4"	6#14
C7	3/4"	7#14
C8	3/4"	8#14
C9	3/4"	9#14
C10	3/4"	10#14
C12	1"	12#14
C16	1-1/2"	16#14
C22	1-1/2"	22#14
C24	1-1/2"	24#14
C40	2"	40#14
C60	2"	60#14
C80	3"	80#14

SIGNAL CABLE/CONDUIT SCHEDULE *

SYMBOL	CONDUIT SIZE	CONDUCTORS
S	1"	EMPTY
S1	3/4"	1-2/C#16
S1A	3/4"	1-3/C#16
S2	3/4"	2-2/C#16
S3	1"	3-2/C#16
S4	1"	4-2/C#16
S5	1"	5-2/C#16
S6	1 1/2"	6-2/C#16
S7	1 1/2"	7-2/C#16
S8	1 1/2"	8-2/C#16
S9	1 1/2"	9-2/C#16
S10	2"	10-2/C#16
S11	3"	11-3/C#16
S13	3"	13-2/C#16

* - NOT ALL RACEWAYS/CABLES SHOWN ARE USED IN THIS PROJECT

EARTH TECH AS-BUILT FILE MAY 2008

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A Tyco International Ltd. Company
300 BAKER AVENUE SUITE 290 CONCORD MA 01742 (978) 371-4000

FULL SIZE DRAWING = 4"

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B	REV. B AGENCY REVIEW		9/16/05
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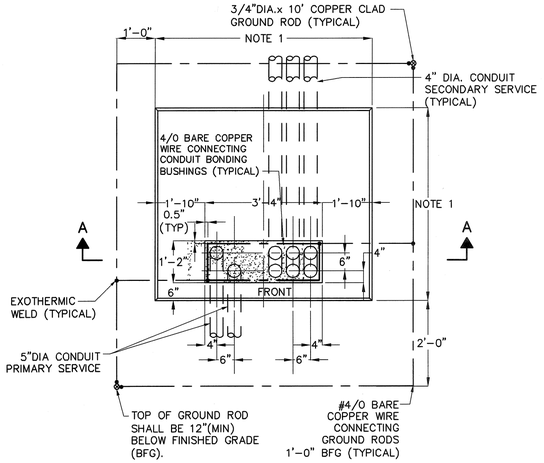
ROBERT H. SHELDON 4103 REGISTERED PROFESSIONAL ENGINEER 10/31/06

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
SCHEDULES

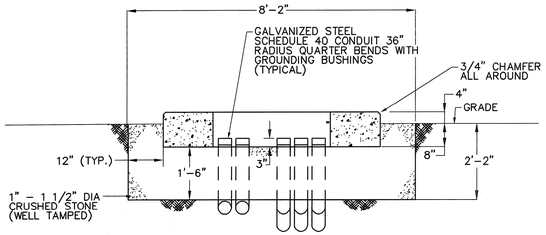
DESIGNED BY DM	DWG SCALE NONE
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

E-6
SHEET OF

PLOT TIME/DATE: 2007/07/27 11:33 AM



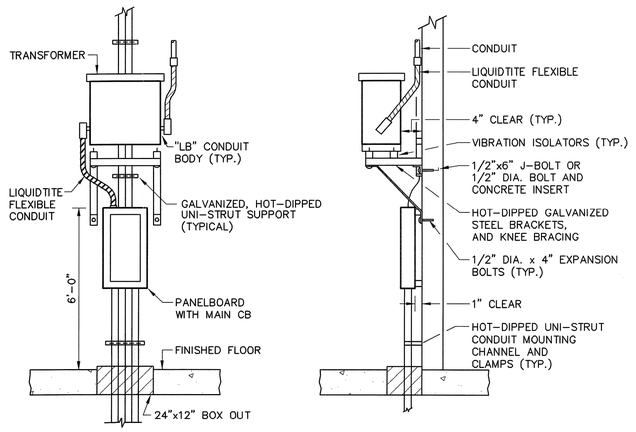
PLAN VIEW



SECTION "A-A"

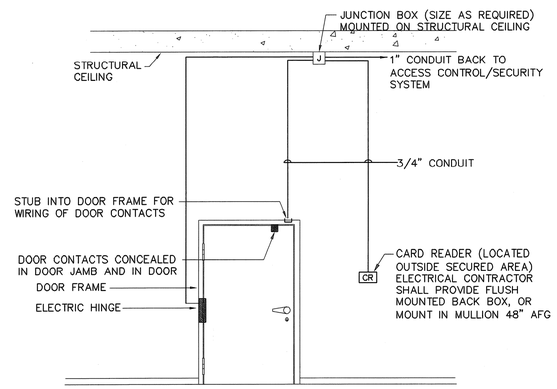
NOTES:
1. REFER TO UTILITY COMPANY REQUIREMENTS FOR PAD LAYOUT.
2. ALL GROUND GRID CONNECTIONS SHALL BE EXOTHERMIC WELD.
3. DO NOT ALLOW PRIMARY AND SECONDARY CONDUITS TO CROSS EACH OTHER INSIDE OR OUTSIDE THE PAD. LOCATE SECONDARY CONDUITS AS FAR TO THE RIGHT AS POSSIBLE IN THE PAD OPENING.
4. CAP ALL CONDUIT ENDS TO PREVENT MOISTURE AND DEBRIS FROM ENTERING CONDUITS PRIOR TO TRANSFORMER INSTALLATION.
5. PRIMARY DUCT GROUND SHALL BE CONNECTED TO PAD GROUND GRID.

TRANSFORMER PAD DETAIL



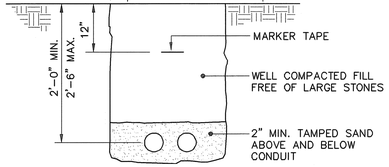
FRONT ELEVATION SIDE ELEVATION

TRANSFORMER MOUNTING DETAIL
NOT TO SCALE

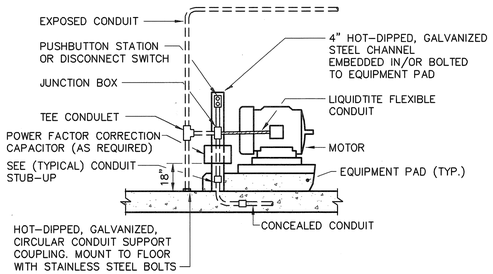


NOTES:
1. ALL LOW VOLTAGE WIRING AND SECURITY EQUIPMENT SHALL BE FURNISHED BY SECURITY SYSTEM SUPPLIER.
2. COORDINATE EXACT LOCATIONS AND MOUNTING REQUIREMENTS OF ALL DEVICES WITH ARCHITECTURAL DRAWINGS.
3. PROVIDE INSULATED BUSHINGS ON ALL CONDUITS.
4. ELECTRIC DOOR STRIKES AND HINGES SHALL BE FURNISHED AND INSTALLED BY THE HARDWARE CONTRACTOR.
5. VERIFY DOOR HARDWARE CONNECTIONS WITH MANUFACTURERS INSTALLATION MANUAL.
6. COORDINATE INSTALLATION OF RACEWAY W/OTHER BUILDING TRADES TO CONCEAL WITHIN STRUCTURE.

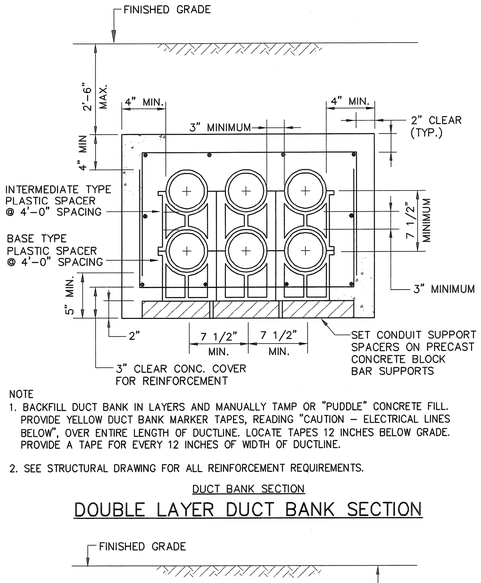
TYPICAL DOOR ACCESS CONTROL/SECURITY DETAIL
NOT TO SCALE



UNDERGROUND DIRECT BURIED CONDUIT TRENCH
NOT TO SCALE



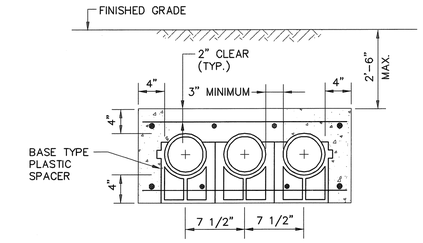
CONDUIT ARRANGEMENT FOR MOTOR
NOT TO SCALE



NOTE
1. BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE YELLOW DUCT BANK MARKER TAPES, READING "CAUTION – ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
2. SEE STRUCTURAL DRAWING FOR ALL REINFORCEMENT REQUIREMENTS.

DUCT BANK SECTION

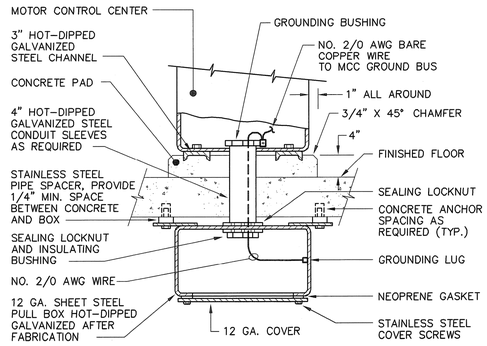
DOUBLE LAYER DUCT BANK SECTION



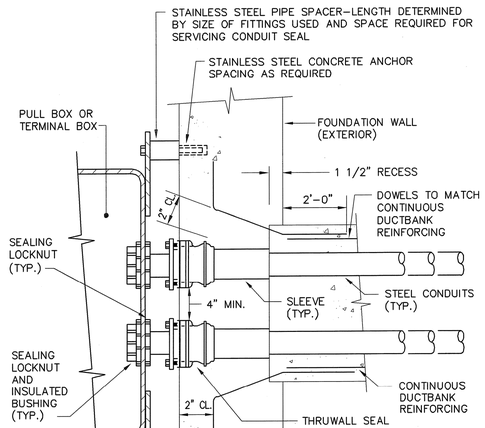
NOTE
1. BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE YELLOW DUCT BANK MARKER TAPES, READING "CAUTION – ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
2. SEE STRUCTURAL DRAWING FOR ALL REINFORCEMENT REQUIREMENTS.

SINGLE LAYER DUCT BANK SECTION

UNDER ROADWAY AND PAVED AREA
NOT TO SCALE

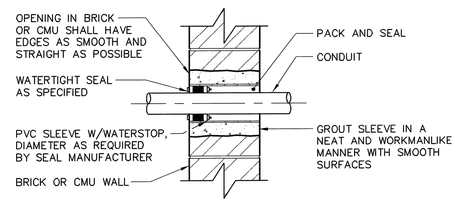


MOTOR CONTROL CENTER PULLBOX MOUNTED DIRECTLY UNDER SLAB
NOT TO SCALE

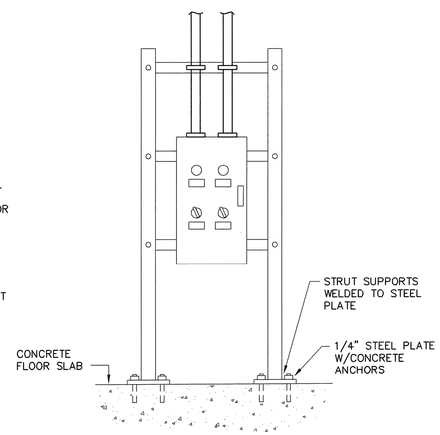


NOTE:
WHERE PVC CONDUIT IS USED IN DUCTBANK, CONVERT TO STEEL CONDUIT USING AN APPROPRIATE ADAPTER FITTING WITHIN 3'-0" OF WALL.

CONDUIT ENTRANCE SEAL IN NEW WALL
NOT TO SCALE



WATERTIGHT CONDUIT PENETRATION THROUGH BRICK OR CMU WALL
NOT TO SCALE



CONTROL PANEL MOUNTING DETAIL
NOT TO SCALE

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NO.	DATE	BY	REVISIONS
2	MAY 2008	DPB	AS-BUILT DRAWING FILE
1	10/31/06		ISSUED FOR RFI POSTED SET
0	10/28/05		ISSUED FOR CONSTRUCTION
B	9/16/05		REV. B AGENCY REVIEW
A	7/22/05		REV. A CLIENT REVIEW

FULL SIZE DRAWING = 4"

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 27/09

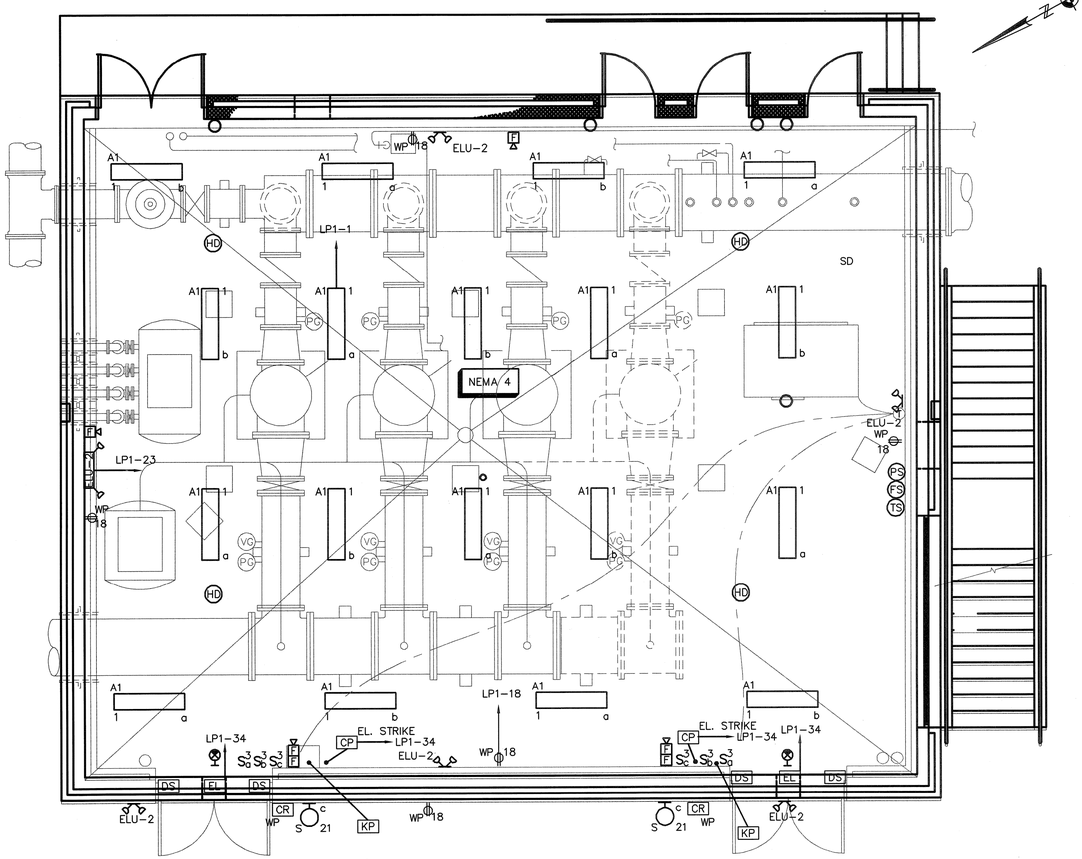
PAWTUCKET, RHODIA ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
DETAILS

DESIGNED BY DM	DWG SCALE NONE
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

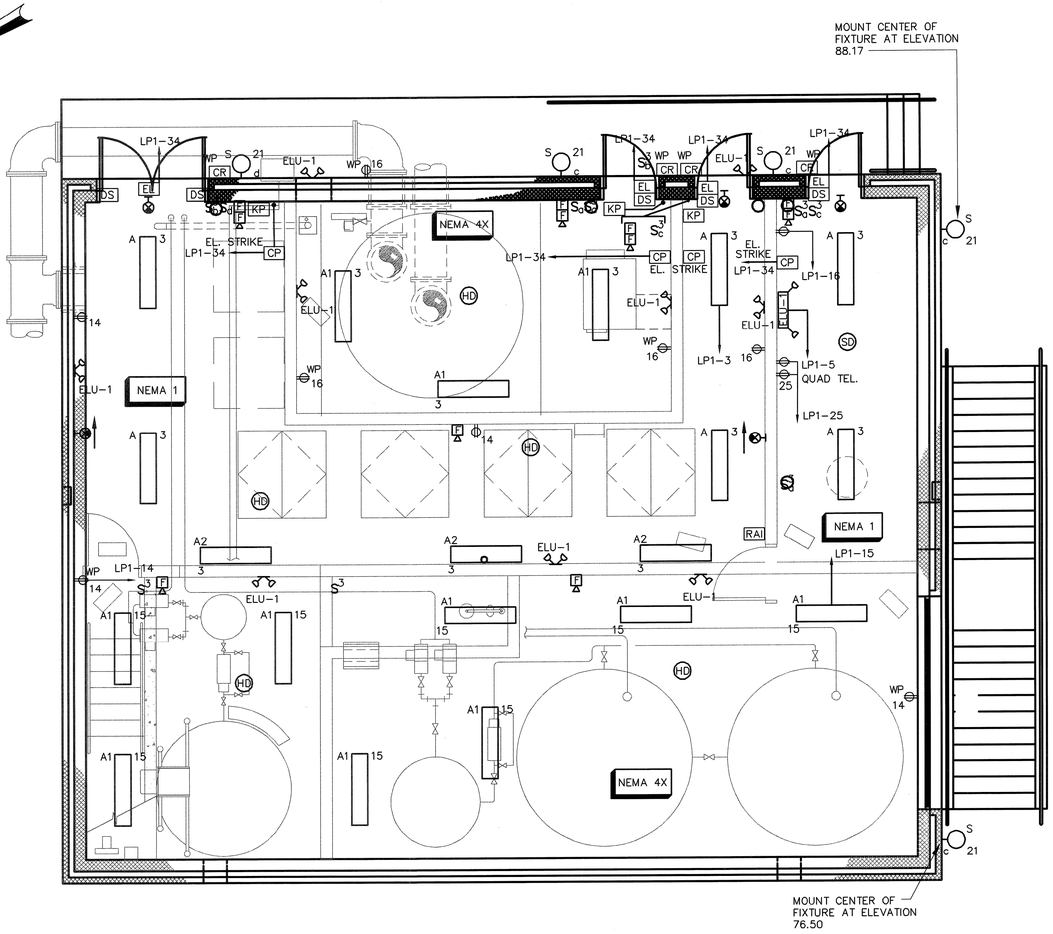
EARTH TECH AS-BUILT FILE MAY 2008

E-7
SHEET OF

PLOT FILE USER: MSILVIO DATE/TIME: 7/27/2009 11:33 AM



PUMP LEVEL
LIGHTING AND MISC. SYSTEMS PLAN
SCALE: 1/4" = 1'-0"



GROUND LEVEL
LIGHTING AND MISC. SYSTEMS PLAN
SCALE: 1/4" = 1'-0"

NOTES:

1. SEE SHEET E-1 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.
2. CONNECT REMOTE EMERGENCY HEADS IDENTIFIED WITH UNIQUE NUMBERS TO THE EMERGENCY LIGHTING UNITS (ELU) OF THE SAME NUMBER. MINIMUM WIRE SIZE SHALL BE #10 IN 1/2" CONDUIT, WITH RECEWAY TYPE AS REQUIRED BY THE NEMA CLASSIFICATION OF THE AREA SERVED. PROVIDE #8 WIRE TO REMOTE HEADS GREATER THAN 50 FEET CABLE DISTANCE FROM ELU. PROVIDE JUNCTION BOX ABOVE ELU TO SPLICE WIRING TO SIZE REQUIRED FOR ELU.
3. EXIT LIGHTS SHALL BE POWERED FROM UNSWITCHED LINE OF NEAREST LIGHTING CIRCUIT.
4. VERIFY CORRECT LIGHT SWITCH LOCATION, PRIOR TO INSTALLATION TO INSURE THAT THE SWITCHES ARE NOT INSTALLED BEHIND OPENED DOOR.
5. RECEPTACLES IN NEAM 4 AREAS AND EXTERIOR TO BE GASKETED WITH COVERS THAT SEAL RECEPTACLE WHEN CORD CONNECTED EQUIPMENT ARE IN USE.

EARTH TECH AS-BUILT FILE MAY 2008

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B	REV. B AGENCY REVIEW		8/16/05
A	REV. A CLIENT REVIEW		7/22/05

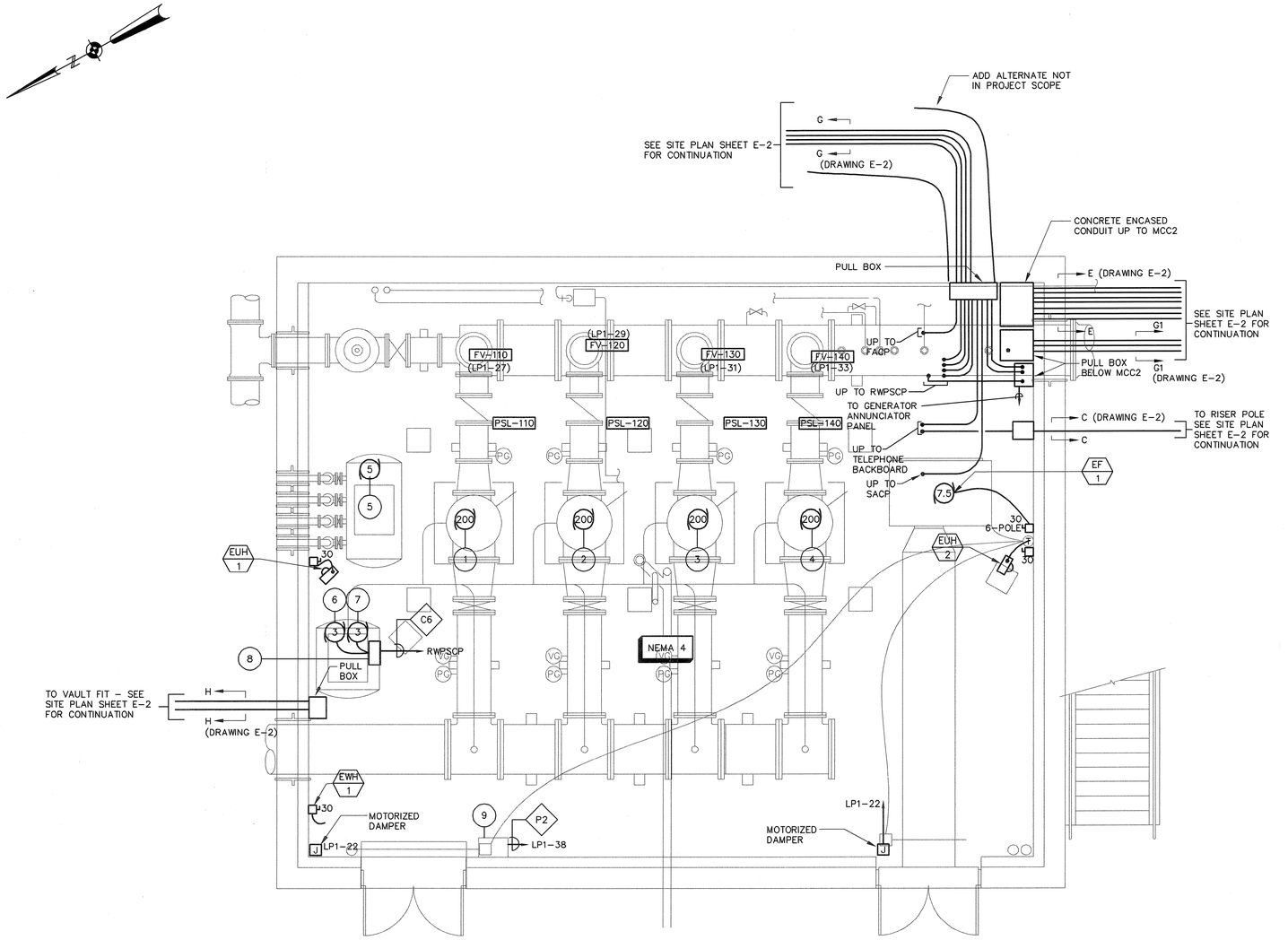
ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
LIGHTING AND MISC. SYSTEMS PLAN

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO
CHECKED BY WS	DATE OCTOBER 31, 2006

E-8
SHEET OF

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\ELEC\69993-PKG12-E8.DWG
Plot File Date Created: Sep/22/2008 11:35 AM



PUMP LEVEL – POWER PLAN
SCALE: 1/4" = 1'-0"

EQUIPMENT LEGEND

1. RAW WATER PUMP "RWP-110"
2. RAW WATER PUMP "RWP-120"
3. RAW WATER PUMP "RWP-130"
4. FUTURE RAW WATER PUMP "RWP-140"
5. AIR COMPRESSOR
6. VACUUM PRIMING SYSTEM PUMP NO.1
7. VACUUM PRIMING SYSTEM PUMP NO.2
8. VACUUM PRIMING SYSTEM CONTROL PANEL
9. AIR DIFFUSION SYSTEM

NOTES:

1. SEE SHEET E-1 FOR LEGEND, ABREVIATIONS, AND GENERAL NOTES.
2. SEE SHEET E-3 FOR 480V POWER REQUIREMENTS.

EARTH TECH AS-BUILT FILE MAY 2008

Filename: L:\WORK\69993\CAD\AS-BUILT\(11-12) RWTP\E.ELEC\69993-PKG12-E9.DWG
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NO.	DATE	BY
2	MAY 2008	DPB
	AS-BUILT DRAWING FILE	
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0	10/28/05	
	ISSUED FOR CONSTRUCTION	
B	8/16/05	
	REV. B AGENCY REVIEW	
A	7/22/05	
	REV. A CLIENT REVIEW	
	REVISIONS	

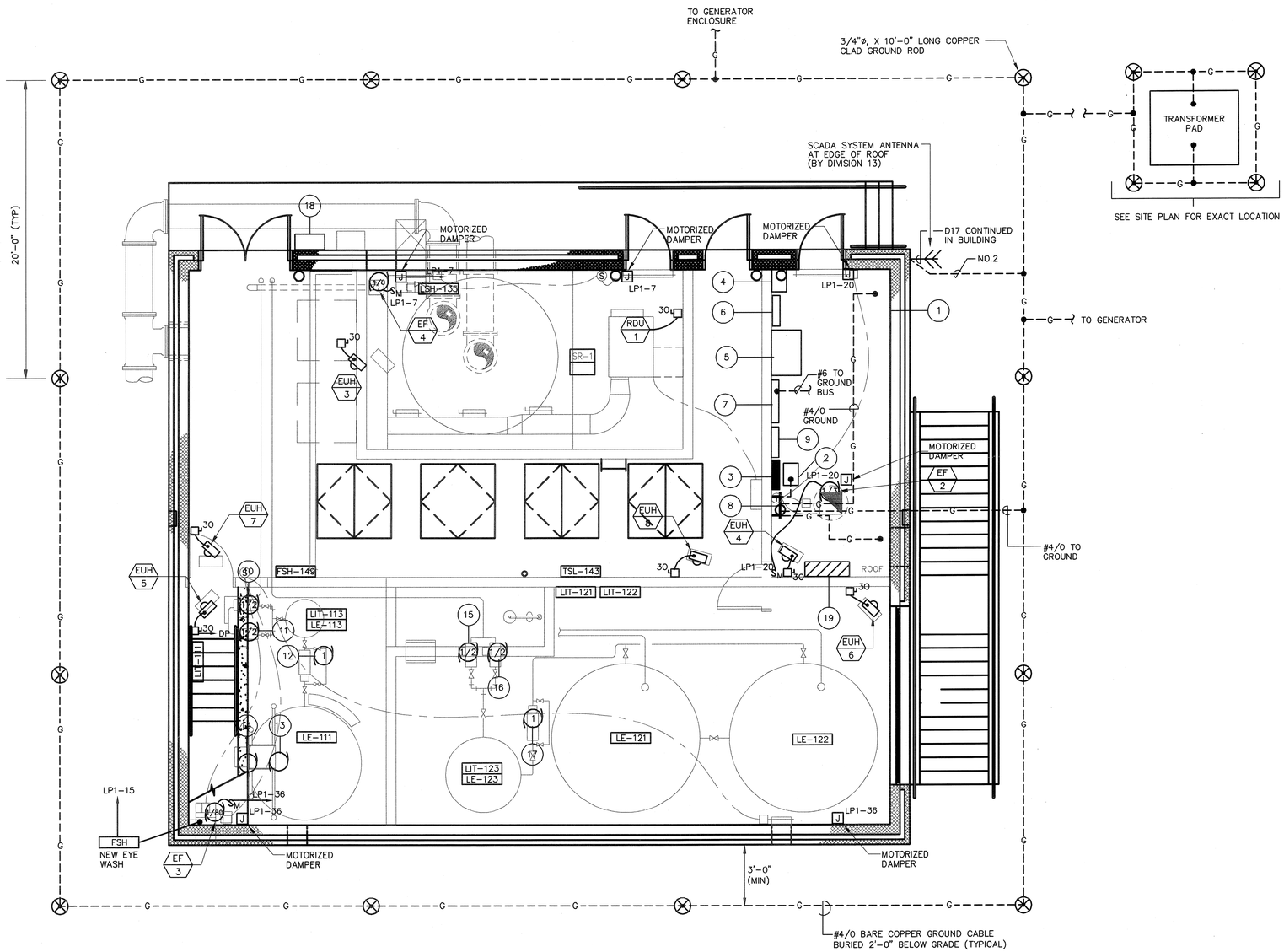
FULL SIZE DRAWING = 4"

ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL
WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
PUMP LEVEL POWER PLAN

DESIGNED BY DM	DWG SCALE AS NOTED
DRAWN BY DM	CONTRACT NO
CHECKED BY MS	DATE OCTOBER 31, 2006

E-9
SHEET OF



GROUND LEVEL – POWER PLAN

SCALE: 1/4" = 1'-0"

EQUIPMENT LEGEND

1. MOTOR CONTROL CENTER "MCC2" (PULL BOX FOR FEEDS TO RAW WATER PUMPS NOT SHOWN)
2. 30KVA, 480–120/208V, 3PH, 4–WIRE TRANSFORMER
3. LIGHTING PANELBOARD "LP1"
4. GENERATOR ANNUNCIATOR PANEL AND EMERGENCY STOP SWITCH
5. SCADA CONTROL PANEL "RWPSCP"
6. FIRE ALARM CONTROL PANEL (FACP)
7. TELEPHONE BACKBOARD AND CABINET PROVIDED WITH TELEPHONE INTERFACE PANEL, TELEPHONE JACK AND ASSOCIATED CATEGORY 3 CABLE
8. GROUND BUS
9. SECURITY SYSTEM CONTROL PANEL "SACP"
10. POTASSIUM PERMANGANATE CHEMICAL FEED PUMP "KFP–111"
11. POTASSIUM PERMANGANATE CHEMICAL FEED PUMP "KFP–112"
12. POTASSIUM PERMANGANATE CHEMICAL TRANSFER PUMP "KTP–110"
13. POTASSIUM PERMANGANATE MIXER
14. POTASSIUM PERMANGANATE DUST COLLECTOR
15. SODIUM HYDROXIDE CHEMICAL FEED PUMP "OHFP–121"
16. SODIUM HYDROXIDE CHEMICAL FEED PUMP "OHFP–122"
17. SODIUM HYDROXIDE CHEMICAL TRANSFER PUMP "OHTP–120"
18. CHEMICAL FILL PANEL
19. POWER DISTRIBUTION PANEL "DP"

NOTES:

1. SEE SHEET E–1 FOR LEGEND, ABREVIATIONS, AND GENERAL NOTES.
2. MOUNT (QUANTITY 3) RAW WATER PUMP POWER FACTOR CORRECTION CAPACITORS ABOVE MOTOR CONTROL CENTER.

EARTH TECH AS-BUILT FILE MAY 2008

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0	ISSUED FOR CONSTRUCTION		10/26/05
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ROBERT H. SHELDON No. 4103 REGISTERED PROFESSIONAL ENGINEER 31/08

PAWTUCKET, RHODE ISLAND
PAWTUCKET REGIONAL WATER TREATMENT FACILITY
PKGS 11 & 12 - RAW WATER PUMP STATION
GROUND LEVEL POWER PLAN

DESIGNED BY DM	DWG SCALE AS NOTED
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E–10

SHEET OF

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